

# MALCOLM PIRNIE

## POTENTIAL HAZARDOUS WASTE SITE PRELIMINARY ASSESSMENT

Lakewood Twp. Landfill

NJD980771711

156

Site Name

Site ID Number

Cross & Prospect Sts.

Lakewood, Ocean Co., NJ

Address

City, State

Date of Off-Site Reconnaissance March 20, 1985

### SITE DESCRIPTION

This inactive site located off the Kennedy Ave. access road was used as a municipal landfill until 1983. It was ordered to close at that time per an NJDEP ACO.

Ocean County submitted a regionalization plan to the NJDEP in 1981 for this landfill location. The plan noted that the landfill accepted non-hazardous chemical wastes. Results for some of the wells sampled in the area showed low levels of organic compounds.

PRIORITY FOR FURTHER ACTION: High ☐ Medium ☒ Low ☐ None ☐

### RECOMMENDATIONS

Given the potential for direct contact with unknown wastes, ground and surface water contamination, the types of materials reportedly disposed of and the light industrial/residential nature of the surrounding area, it is recommended that a site inspection be conducted.

Prepared by: M. Manto

Date: April 3, 1985

Of: Malcolm Pirnie Inc.

REVISED MAY 24, 1985

235865





POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT  
PART 1 - SITE INFORMATION AND ASSESSMENT

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
NJ 156

II. SITE NAME AND LOCATION

01 SITE NAME (Legal, common, or descriptive name of site)

Lakewood Township L.F.

02 STREET, ROUTE NO., OR SPECIFIC LOCATION IDENTIFIER

Cross & Prospect Sts.

03 CITY

Lakewood

04 STATE

NJ

05 ZIP CODE

08701

06 COUNTY

Ocean

07 COUNTY CODE

08 CONG. DIST.

09 COORDINATES

LATITUDE  
40 03 50.0

LONGITUDE  
74 11 10.0

BLOCK 524

LOT 101-105

10 DIRECTIONS TO SITE (Starting from nearest public road) Rt. 9 south to Prospect St. Follow Prospect St. to Cross St. Make left onto Kennedy Ave. Site is on right.

III. RESPONSIBLE PARTIES

01 OWNER (if known)

Lakewood Township

02 STREET (Business, mailing, residential)

231 3rd. St.

03 CITY

Lakewood

04 STATE

NJ

05 ZIP CODE

08701

06 TELEPHONE NUMBER

(201)-3630557

07 OPERATOR (if known and different from owner)

08 STREET (Business, mailing, residential)

09 CITY

10 STATE

11 ZIP CODE

12 TELEPHONE NUMBER

( )

13 TYPE OF OWNERSHIP (Check one)

☐ A. PRIVATE

☐ B. FEDERAL

☐ C. STATE

☐ D. COUNTY

☒ E. MUNICIPAL

☐ F. OTHER

(Agency name)

☐ G. UNKNOWN

(Specify)

14 OWNER/OPERATOR NOTIFICATION ON FILE (Check all that apply)

☐ A. RCRA 3001 DATE RECEIVED:

MONTH DAY YEAR

☐ B. UNCONTROLLED WASTE (CERCLA 103c) DATE RECEIVED:

MONTH DAY YEAR

☒ C. NONE

IV. CHARACTERIZATION OF POTENTIAL HAZARD

01 ON SITE INSPECTION

BY (Check all that apply)

☒ YES

DATE 5/31/84

☐ NO

MONTH DAY YEAR

☐ A. EPA

☐ B. EPA CONTRACTOR

☒ C. STATE

☐ D. OTHER CONTRACTOR

☐ E. LOCAL HEALTH OFFICIAL

☐ F. OTHER

(Specify)

CONTRACTOR NAME(S)

02 SITE STATUS (Check one)

☐ A. ACTIVE

☒ B. INACTIVE

☐ C. UNKNOWN

03 YEARS OF OPERATION

1984

1984

☐ UNKNOWN

BEGINNING YEAR

ENDING YEAR

04 DESCRIPTION OF SUBSTANCES POSSIBLY PRESENT, KNOWN, OR ALLEGED

Non-hazardous chemical waste were reportedly disposed of in the 1970's.  
(Attachments A,B,C)

05 DESCRIPTION OF POTENTIAL HAZARD TO ENVIRONMENT AND/OR POPULATION

Potential exists for soil, surface and ground water contamination.  
(Attachment A,B,C)

V. PRIORITY ASSESSMENT

01 PRIORITY FOR INSPECTION (Check one. If high or medium is checked, complete Part 2 - Waste information and Part 3 - Description of Hazardous Conditions and Incidents)

☐ A. HIGH

(Inspection required promptly)

☒ B. MEDIUM

(Inspection required)

☐ C. LOW

(Inspection on time available basis)

☐ D. NONE

(No further action needed, complete current disposition form)

VI. INFORMATION AVAILABLE FROM

01 CONTACT

Fred Schmitt

02 OF (Agency/Organization)

NJDEP/BEERA

03 TELEPHONE NUMBER

(609) 292-1215

04 PERSON RESPONSIBLE FOR ASSESSMENT

M. Manto

05 AGENCY

06 ORGANIZATION

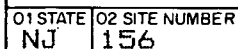
M. Pirnie Inc

07 TELEPHONE NUMBER

(914) 694-2100

08 DATE

4/3/85

☐ M. NOT APPLICABLE



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT

PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE 02 SITE NUMBER  
NJ 156

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 ☒ A. GROUNDWATER CONTAMINATION 02 ☒ OBSERVED (DATE: 10/81 ) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Ground-water contamination from leachate was reported.  
(Attachments A,B,C)

01 ☒ B. SURFACE WATER CONTAMINATION 02 ☐ OBSERVED (DATE: ) ☒ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Surface streams run through the site and leachate has been observed  
on-site. Potential exists for contamination by buried materials.  
(Attachment A)

01 ☐ C. CONTAMINATION OF AIR 02 ☐ OBSERVED (DATE: ) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

01 ☒ D. FIRE/EXPLOSIVE CONDITIONS 02 ☒ OBSERVED (DATE: 4/13/81 ) ☐ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

A welding-type gas tank exploded on-site. Similar tanks were  
returned to the generator. (Attachment D)

01 ☒ E. DIRECT CONTACT 02 ☐ OBSERVED (DATE: ) ☒ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Potential exists if buried wastes contaminate streams running  
through site. (Attachments A,C)

01 ☒ F. CONTAMINATION OF SOIL 02 ☐ OBSERVED (DATE: ) ☒ POTENTIAL ☐ ALLEGED

03 AREA POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Potential exists for <sup>(Areas)</sup>soil contamination from buried materials.  
(Attachments A,C)

01 ☒ G. DRINKING WATER CONTAMINATION 02 ☐ OBSERVED (DATE: ) ☒ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Private wells in the area did not show contamination. The 10/81 report  
indicates some elevated levels of organics in monitoring wells.  
(Attachment A,B,C)

01 ☒ H. WORKER EXPOSURE/INJURY 02 ☒ OBSERVED (DATE: 4/13/81 ) ☐ POTENTIAL ☐ ALLEGED

03 WORKERS POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

A welder's type gas tank exploded on-site. Two similar tanks were  
returned to the generator. (Attachment D)

01 ☒ I. POPULATION EXPOSURE/INJURY 02 ☐ OBSERVED (DATE: ) ☒ POTENTIAL ☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: 04 NARRATIVE DESCRIPTION

Potential exists due to leachate streams, history of inadequate cover  
and apparent accessibility of site. (Attachments A,B,C,G)



POTENTIAL HAZARDOUS WASTE SITE  
PRELIMINARY ASSESSMENT

PART 3-DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION

01 STATE NJ 02 SITE NUMBER 156

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. DAMAGE TO FLORA

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

01 ☐ K. DAMAGE TO FAUNA

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION (Include name(s) of species)

01 ☐ L. CONTAMINATION OF FOOD CHAIN

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

01 ☒ M. UNSTABLE CONTAINMENT OF WASTES  
(Spills/runoff/standing liquids/leaking drums)

02 ☒ OBSERVED (DATE: 7/30/82 )

☐ POTENTIAL

☐ ALLEGED

03 POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

04 NARRATIVE DESCRIPTION

During two site visits, drums were observed on-site.  
Inadequate cover has been applied. (Attachments F,G)

01 ☒ N. DAMAGE TO OFFSITE PROPERTY

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☒ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

Potential exists if streams on-site are contaminated by buried  
materials. (Attachments A,B,C)

01 ☐ O. CONTAMINATION OF SEWERS, STORM DRAINS, WWTPs

02 ☐ OBSERVED (DATE: \_\_\_\_\_)

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

01 ☒ P. ILLEGAL/UNAUTHORIZED DUMPING

02 ☒ OBSERVED (DATE: 7/30/82 )

☐ POTENTIAL

☐ ALLEGED

04 NARRATIVE DESCRIPTION

During two site visits, drums were observed on-site.  
(Attachments F,G)

05 DESCRIPTION OF ANY OTHER KNOWN, POTENTIAL, OR ALLEGED HAZARDS

The Ocean County Planning Agency reports no current monitoring of  
area wells.

III. TOTAL POPULATION POTENTIALLY AFFECTED: \_\_\_\_\_

IV. COMMENTS

Administrative Consent Orders from 1981 and 1983 ordered the  
township to cease accepting waste and submit a closure plan to  
NJDEP. Kennedy Ave. is the access road to the Cross St./Prospect  
St. landfill. (Attachments E)

V. SOURCES OF INFORMATION (Cite specific references, e.g. state files, sample analysis, reports)

NJDEP/DWM, HSMA Files: Attachments D-G  
Malcolm Pirnie: Attachment A - C  
Phone Memo: Ocean County Planning Agency

LAKEWOOD TWP. DANFILL

Site Name

156

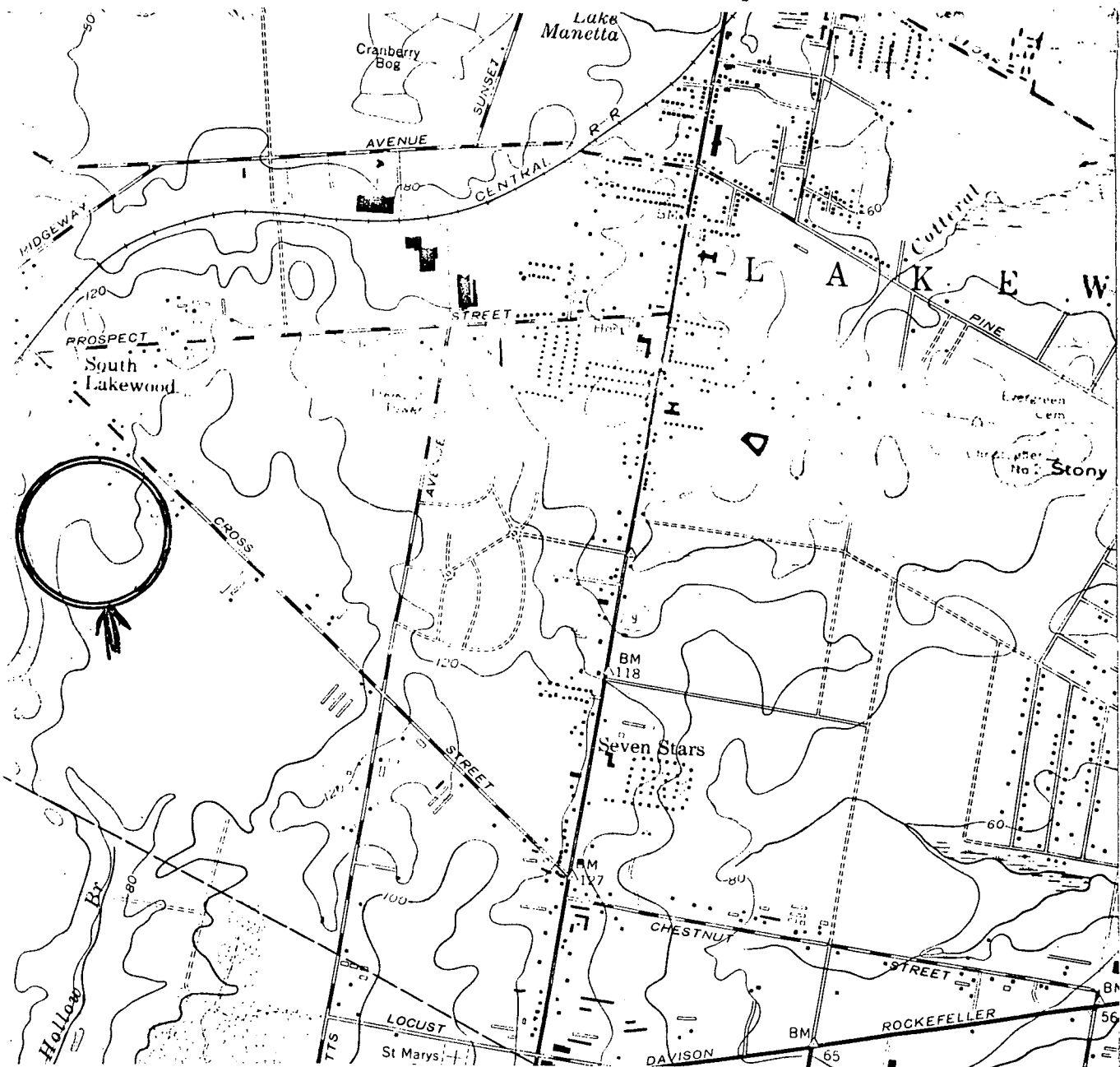
Site ID Number

KENNEDY AVE

LAKEWOOD  
N.J.

Address

City, State



Source: QUAD LAKEWOOD, N.J.

LAT 40° 03' 10"

LONG 74° 11' 10"

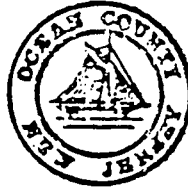
Prepared by: Ralph K. Barden

Date: MARCH 20, 1985

SAFE International

# BOARD OF CHOSEN FREEHOLDERS

OCEAN COUNTY, NEW JERSEY



## FEASIBILITY ASSESSMENT OF NORTHERN REGIONAL SANITARY LANDFILL SITE

LAKESWOOD-DOVER-JACKSON TWPS., NEW JERSEY

OCTOBER, 1981

WARREN H. WOLF, Freeholder Director

LEONARD T. CONNORS, JR., Freeholder

JOHN C. BARTLETT, Freeholder

H. GEORGE BUCKWALD, Freeholder

DAMIAN MURRAY, Freeholder

ALBERT J. MELLINI

Professional Engineer - N.J. Lic. No. 24779

Elson T. Killam Associates, Inc.

Environmental and Hydraulic Engineers

ATTACHMENT A





## 1.2 Description of Existing Landfill

### 1.2.1 Site Location

Lakewood Municipal Landfill, (LMLF) is located in Lakewood Township, Ocean County. It is situated on the Lakewood Township, Jackson Township, and Dover Township border in the southwestern section of Lakewood. It is bordered on the north by Cross Street, on the east by Massachusetts Avenue, on the south by Whitesville Road and on the west by Faraday Road and a branch of the C.R.R. of New Jersey. Plate 1 shows LMLF in a regional setting.

Transportation access to the site is good. It is located near State Route 70 and all of the surrounding roads are improved county roads capable of carrying truck traffic. The LMLF is ideally located to service the high population areas of Brick, Dover and Lakewood as well as Manchester and the shore communities on Island Beach.

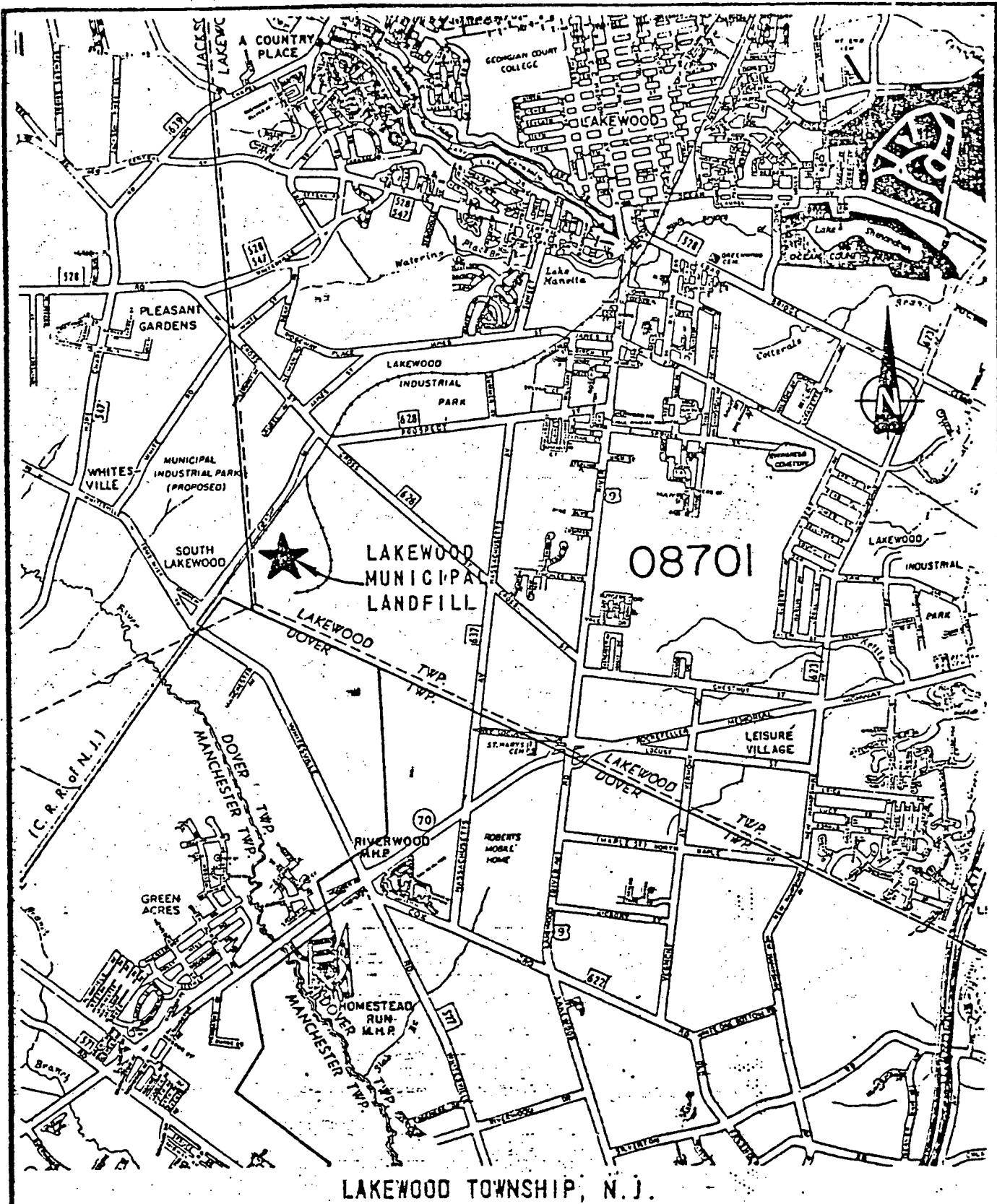
### 1.2.2 Site Specific Features

Plate 2 is a U.S.G.S. 7 1/2 minute quadrangle map which shows the site in a more detailed setting. The actual property lines of the existing landfill are shown on the Plate. Access to the existing site is from Cross Street in the northeast sector of the site. The major topographical feature is the property directly east of the landfill. This is a gravel pit which has been substantially mined out. On the site itself, the existing landfilling operation is currently at elevation 130. The landfill is a surface high point. From the landfill, topography drops in a southwesterly direction towards Whitesville Road and the Toms River and southeasterly towards Cross Street and Massachusetts Avenue. The elevation of Whitesville Road is approximately 70 and the elevation of Toms River is at about 50.

ATTACHMENT

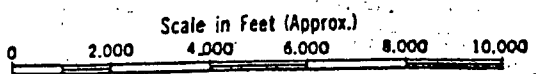
A-1





LAKEWOOD TOWNSHIP, N.J.

ATTACHMENT A-2



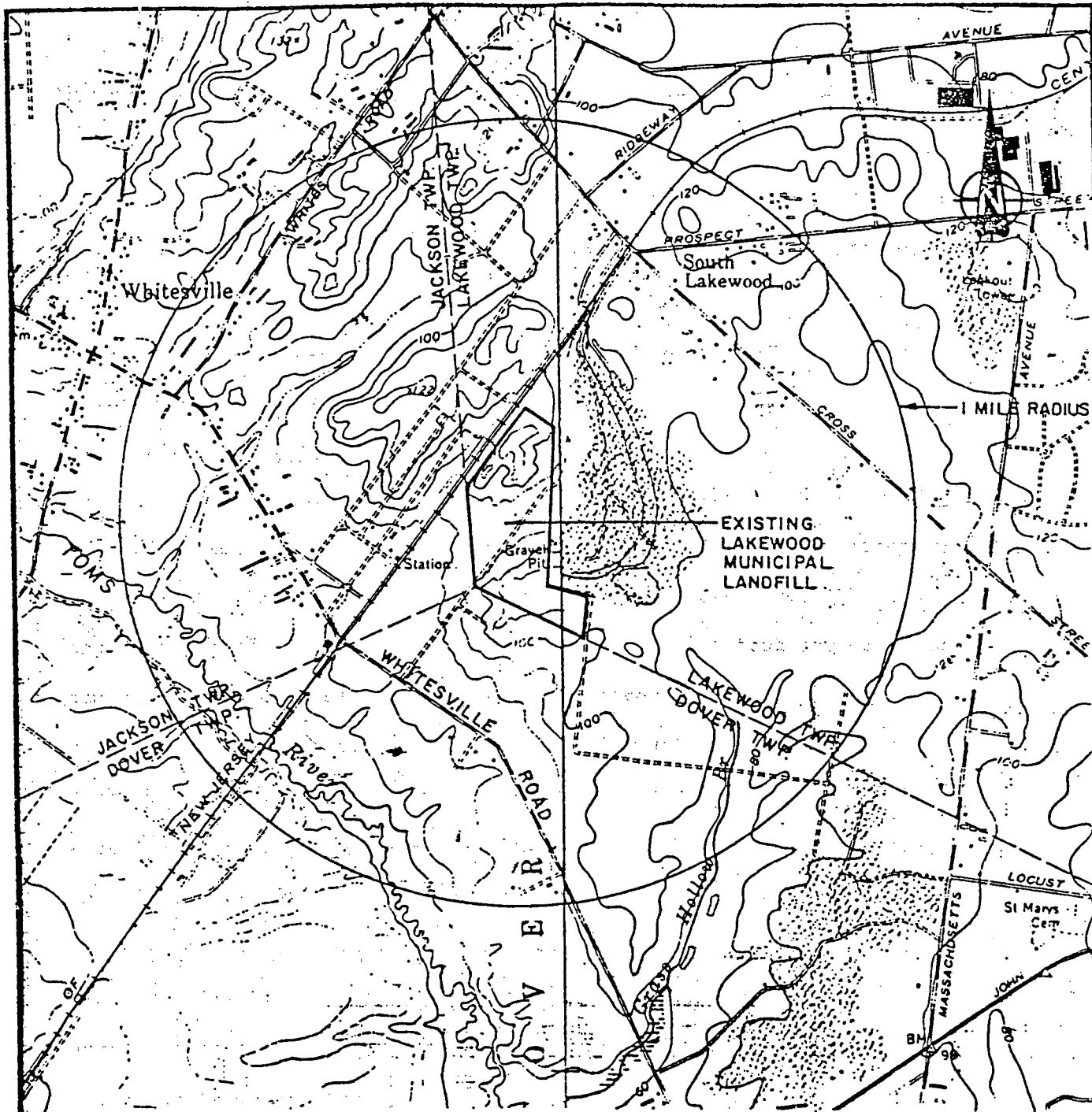
SOURCE: HAGSTROM CO., N.Y., N.Y.

COUNTY OF OCEAN  
REGIONAL SANITARY  
LANDFILL PLAN  
SITE LOCATION  
NORTHERN SITE

Elson T. Kham Associates, Inc.  
Environmental and Hydraulic Engineers  
27 Bloomer Street, Millburn, New Jersey 07041



BRUNING 44-142 32466



# LAKEWOOD TOWNSHIP, N.J.

## ATTACHMENT A-3

SCALE: 1" = 2000'

SOURCE: U.S.G.S. LAKEWOOD AND LAKEHURST  
7 1/2 MINUTE 1971 QUADRANGLES

COUNTY OF OCEAN  
REGIONAL SANITARY  
LANDFILL PLAN  
LOCATION PLAN  
NORTHERN SITE

Elson T. Kilam Associates, Inc.  
Environmental and Hydraulic Engineers  
27 Elmwood Street, Millburn, New Jersey 07041





Also shown on the U.S.G.S. map is the area within a one mile radius of the site. This radius is generally accepted as an area within which impacts are studied. There are several homes within the one mile radius and the impact of the proposed landfill on the homes will be addressed in later portions of this report.

### 1.2.3 Existing Landfill Operation

Lakewood Municipal Landfill is a municipally owned and operated landfill. It operates under the regulations of the State Department of Environmental Protection and the Board of Public Utilities. The BPU approved tariff schedule requires accept solid waste from any collector-hauler. Currently, the landfill accepts approximately 400 tons per day of solid refuse from communities in northern Ocean County and southern Monmouth County. No liquid wastes are accepted at the site. During April, May and June of 1979, 783, 715 and 836 vehicles, respectively, entered the landfill. Equipment at the site include two front-end loaders, a landfill compactor and trucks used for hauling cover material.

The landfill property encompasses 62 acres of which about 5 acres are currently being landfilled. Approximately 43 acres, of the 62 sites have been previously filled with refuse. The property is located on Block 524, Lots 102, 103, 104 and parts of Lot 101 and 105. The landfill is reportedly open six days per week from 7:30 AM to 4 PM. Table 1 lists the quantities and waste types which have been landfilled at LMLE for the period January 1, 1973, through December 31, 1980. As shown on the Table, solid waste types such as residential, commercial, institutional and bulky clean-up wastes as well as liquid waste types such as sewage sludge and non-hazardous chemical waste have been landfilled on the site.

TABLE 1  
HISTORICAL WASTE FLOW  
INTO LAKEWOOD MUNICIPAL LANDFILL

<u>TIME PERIOD</u>	<u>WASTE TYPE</u>	<u>QUANTITY</u>
Jan. 1, 1973 - Dec. 31, 1973	Municipal Waste (1) Bulky Waste Construction & Demo.	24,715 Tons 3,000 Tons 4,000 Tons
Jan. 1, 1974 - Dec. 31, 1974	Municipal Waste Dry Sewage Sludge Bulky Waste	27,535 Tons 1,496 Tons 500 Tons
Jan. 1, 1975 - Dec. 31, 1975	Municipal Waste Bulky Waste Construction & Demo. Liquid Sewage Sludge	9,547 Tons 1,872 Tons 1,000 Tons 1,588,800 Gallons
Jan. 1, 1976 - Dec. 31, 1976	Municipal Waste Bulky Waste Liquid Sewage Sludge Non-Hazardous Chemical Waste Liquids	51,000 C.Y. 25,128 C.Y. 1,200,000 Gallons 2,500,000 Gallons
Jan. 1, 1977 - Dec. 31, 1977	Municipal Waste Bulky Waste Liquid Sewage Sludge Non-Hazardous Chemical Waste Liquids	155,730 C.Y. 35,800 C.Y. 805,500 Gallons 1,740,000 Gallons
Jan. 1, 1978 - Dec. 31, 1978	Solid Waste	177,415 C.Y.
Jan. 1, 1979 - Dec. 31, 1979	Solid Waste	235,538 C.Y.
Jan. 1, 1980 - Dec. 31, 1980	Solid Waste Liquid Sewage Sludge	369,205 C.Y. 121,060 Gallons

(1) Municipal Waste includes residential, commercial, and institutional.

Source: NJDEP - Solid Waste Administration

ATTACHMENT

A3.2

Total Non-Hazardous  
Chemical Liquids

-7-

1/1/76 to 12/31/77 4,240,000 gal



and groundwater recharge system will be constructed, fencing for both litter and security will be installed and security lighting will be installed. The stormwater management system will consist of a partially lined pond into which runoff from the capped landfill areas will drain. The water will be stored in the pond to a certain depth. This water will be available for firefighting purposes. Above the lined area of the pond, the water will recharge back into the ground.

#### 1.3.7 Closure of Existing Landfill

Immediately upon acquisition, closure and capping of the existing LMLF will begin. Currently at LMLF, rainwater is filtering through the refuse, being contaminated, and entering the groundwater. The groundwater flows underground in several directions. Groundwater analysis by Killam Associates confirms that the groundwater which is travelling southwestward toward the Toms River is being affected by the landfill. The proposed technique for stopping the groundwater contamination is to stop the production of leachate at LMLF. This can be accomplished by sealing the top of LMLF with a impermeable barrier. When rainwater is prevented from entering the refuse, leachate production stops provided that the bottom of the existing landfill is above groundwater. Discussion with landfill personnel, as well as soil borings at the site, indicate that refuse is not in contact with groundwater. Extensive additional borings will be done as required by DEP as part of final design.

The first step will involve re-grading the existing top of landfill to specified slopes to facilitate drainage of rainwater away from the existing fill. The re-grading will be done with refuse. The re-grading is shown on the preliminary landfill design plates attached

ATTACHMENT A-4



to the report. After re-grading is completed, two feet of sand will be spread on the top of the refuse. This sand will be allowed to sit for a specified time period to allow consolidation of the re-graded material prior to placement of the impermeable liner.

After settlement has occurred, and the sand is re-graded as necessary, sodium bentonite will be spread and diced into the upper six inches of the sand. Sodium bentonite is a soil (clay) powder which when hydrated, swells to 15 to 20 times its volume. The clay forms a tight, plastic layer which prevents the percolation of water. This material remains impermeable as long as it remains wet. To keep the bentonite wet, and to provide a medium for grass growth, twelve inches of topsoil will be placed over the bentonite. The topsoil will be seeded with a fast growing grass to prevent erosion of the soil. At this time, no further landscaping is planned. The LMLF, when capped, will be impermeable to rainwater and will appear as a large, grassed mound.

During the installation of the bentonite liner, gas vents will be installed. Garbage undergoes anaerobic decomposition while in a landfill for an extended period of time. This decomposition produces methane gas. Methane is explosive if allowed to concentrate to high levels and is then exposed to a spark. In existing, non-capped landfills, the methane travels to the garbage-air interface and disperses into the atmosphere uniformly across the area of the landfill. The methane escapes so slowly and is so dispersed that it poses no threat. However, when the methane is trapped within the landfill and cannot vent to the atmosphere, it concentrates and often begins to move laterally out of the active landfill area and often off-property. There it can concentrate in



buildings and pose an explosive threat or it can kill trees and vegetation.

Obviously, when LMLF is capped, methane will not be able to vent to the atmosphere. To prevent the possible lateral movement of the gas, a uniformly spaced grid of 4 inch diameter PVC vent pipes will be installed through the bentonite cap. These vents will allow the methane to escape to the atmosphere in concentrations low enough to prevent problems.

The capped LMLF will create large volumes of surface runoff during periods of precipitation. Unchecked, this runoff would cause widespread erosion. During the final design of the LMLF closure plan, stormwater runoff troughs and a groundwater recharge basin will be constructed. The recharge basin will be partially lined to store water for firefighting purposes. The CAFRA regulations mandate that no additional runoff from a developed area leave the property. The storm water detention/groundwater recharge basin will serve to intercept this surface runoff.

#### 1.3.8 Capital and Operating Costs

Site improvement costs, Phase 1 construction costs and equipment costs have been estimated for the northern regional landfill. These costs are for 1981 only. They reflect our fair and reasonable estimate of what components are necessary for the construction of a secure sanitary landfill. The costs are outlined on Table 4.

Site improvement costs include those costs which are permanent on-site improvements. They are independent of what phase is being landfilled and they are independent of equipment costs. They include the construction of the buildings such as the scale, scale house/



## 2.0 EXISTING ENVIRONMENT

### 2.1 Natural Resources

#### 2.1.1 Geology

An understanding of local and site-specific geologic conditions is important in evaluating a landfill site since subsurface conditions together with surface soil characteristics determine the rate, level, and direction of groundwater movements within a given site. The presence and suitability of various aquifers for potable water use is also a consideration in evaluating the impact of a landfill on groundwater.

Ocean County is underlain by many layers of marine sediments which were deposited during a period when ancient oceans covered the County. Through the course of geologic time, glacial events and earth movements caused the sea to advance and retreat over the county many times, resulting in sediment layers of various characteristics. These layers differ widely in their ability to store and transmit groundwaters, the more permeable being known as aquifers, the less permeable known as aquitards. In general, the bedrock platform on which these marine sediments lie drops gently to the southeast. In addition, present topography is relatively flat due to erosion of the unconsolidated material. These two factors result in a wedge of sedimentary beds which dip in a southeasterly direction.

The Cohansey formation is composed of quartz sands, mixed with scattered beds of clay and gravel. In most areas within the County, this formation contains the unconfined water table. The Cohansey covers all but the northwestern portion of Ocean County. It thickens in a southeasterly direction ranging up to 200 feet in total thickness. The





Cohansey is an important aquifer in this area with many residential and public supply wells tapping this source. It is also vulnerable to pollution from the surface as it is mostly confined and covered with highly permeable sands.

Below the Cohansey lies the Kirkwood Formation. It outcrops in the northwestern portion of the County and beyond its borders in this direction. The Kirkwood is recharged through its outcrop zone with deep recharge moving southeastward. It also recharges via vertical leakage from the overlying Cohansey. The Kirkwood is also important from a water supply standpoint.

Formations above the Cohansey include a series of eroded, fragmentary deposits younger than the Cohansey. These include the Bridgeton gravel, Pennsauken and Cape May formations, and various Holocene deposits.

Formations below the Kirkwood are less important in the context of the present study as they are located at considerable depth and are isolated by aquitards. Deposits older and deeper than the Kirkwood include the Navesink Formation; Red Bank and Hornerstown Sands; Vincentown, Manasquan and Wenonah Formations; Mt. Laurel Sand; Marshalltown, Englishtown, and Merchantville Formations; Woodbury Clay; and, finally, the Raritan and Magothy Formations which are the oldest in the County and overlay bedrock. In Ocean County, bedrock lies at depths of 2,000 to 3,000 feet.

At the Lakewood Site, the Cohansey Sand is exposed as a surface deposit. However, it is quite thin with the Kirkwood exposed at various locations at this site where surface sands have been removed for mining or

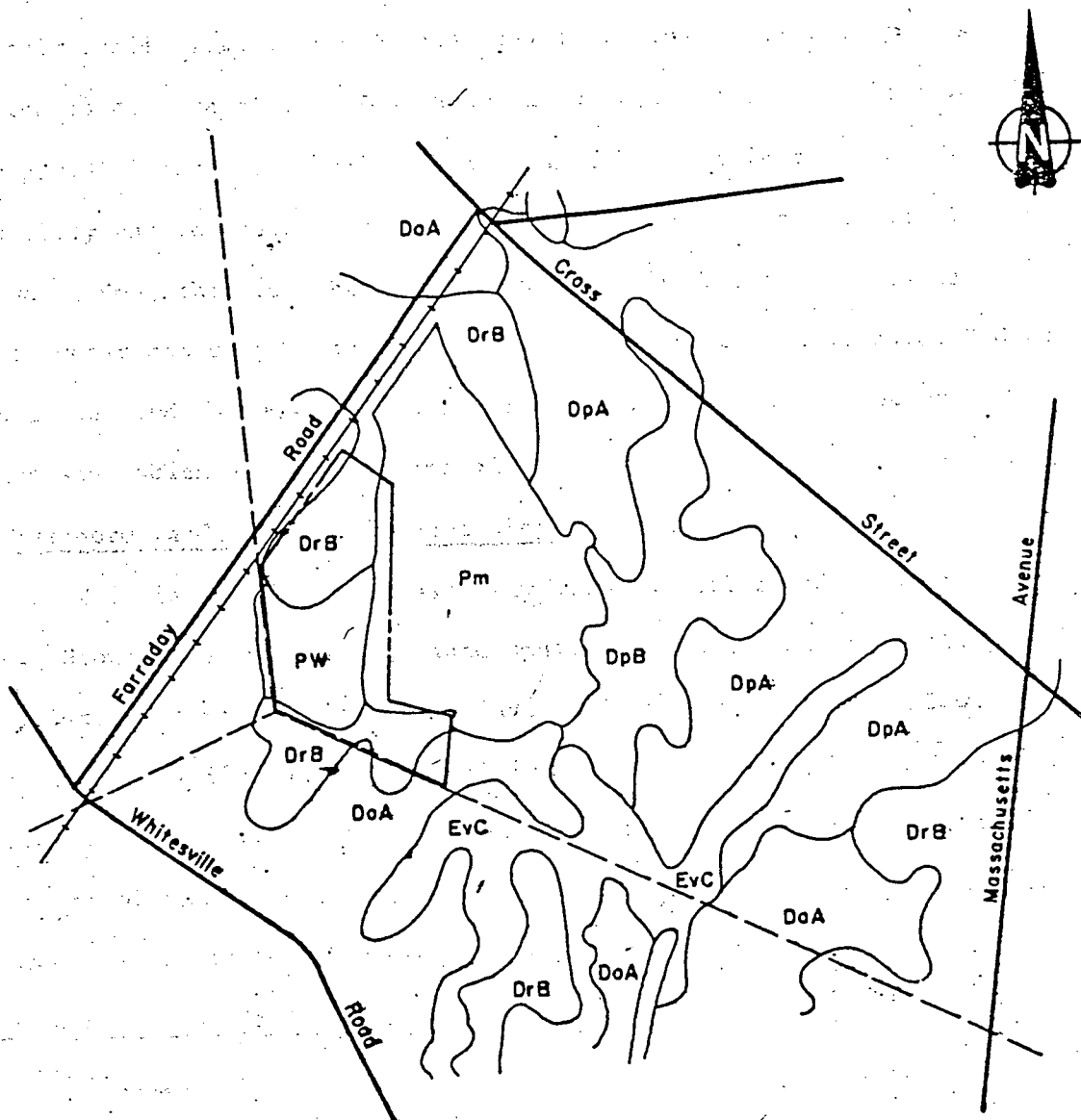


landfilling operations. In this area, the Kirkwood is approximately 60 to 90 feet in thickness. As stated previously, sedimentary beds dip to the southeast. Therefore, without considering topography and water table gradients, deep recharge would tend to migrate from the site in a southeasterly direction toward Dover Township.

### 2.1.2 Soils

Soils are an important consideration when studying the suitability of a site for landfill operations. Of major importance in considering a soil type for landfill suitability is its permeability and associated water table elevation. The water table information is important since Ocean County is underlain by extensive groundwater reserves and depends on these reserves for potable water supply. Soil permeability is the quality that allows the soil to transmit water. The slower the permeability the less water that moves through the soil in a unit of time. Information regarding soil conditions was obtained from the Soil Conservation Service (SCS) maps. In addition, several soil borings were performed to confirm the information obtained from the SCS and to obtain other site specific information. Plate 5 shows the soil patterns around the Lakewood Landfill site. A description of each soil type follows this map. Boring locations are indicated on drawings 1 through 4 attached to this report. Plate 6 shows the soil profiles obtained from each boring. A brief description of each boring is included in this section.

The soils map includes an outline of the landfill site owned by the municipality at this time. Within this area the soils type designated PW, Psammments, is the area currently being filled and is defined as an area of sandy cover over a landfill operation. DrB, downer gravelly sandy loam is found near the entrance to the property. Presently most of this area is covered by vegetation. To the east of the present fill is the soil type classified PM, which includes pits, sand and gravel. This is a disturbed soil condition that is usually excessively drained with



REFERENCE:  
SOIL CONSERVATION SERVICE

NO SCALE

ATTACHMENT B4

SEPTEMBER, 1981

OCEAN COUNTY BOARD OF FREEHOLDERS  
OCEAN COUNTY, NEW JERSEY  
SOILS MAP  
LAKEWOOD MUNICIPAL LANDFILL

Elton T. Kilham Associates, Inc.  
Environmental and Hydraulic Engineers  
27 Stockton Street, Millburn, New Jersey 07041





moderately rapid permeability. This area is where the initial proposed expansion is to take place. The Phase II expansion area will involve a Downer gravelly sandy loam soil condition. This soil is of moderate permeability and moderate water capacity. This area also includes Downer loamy sand, DoA, this soil being of moderate permeability and low to moderate water capacity. The soil map shows a soil type designated EvC to the southeast and far east of the present fill. This is an area of Evesboro sand which has rapid permeability.

EvC - Evesboro sand, 5 to 10 percent slopes

This is a sloping, excessively drained soil found on side slopes. Slopes are convex while some small areas are round or oval. The permeability of this soil is rapid. Available water capacity is low. Natural fertility is low and the soil is very acid. Runoff is medium from this loose, sandy soil. Most areas of this soil type are wooded with pitch pine and oak but the soil is not well suited for trees. Seasonally high groundwater levels are found at depths greater than six feet.

DoA - Downer Loamy Sand - 0 to 5 percent slopes

This is a nearly level to gently sloping, well drained soil found on divides and side slopes. Slopes are convex in nature. The permeability of this soil is moderate to moderately rapid. Available water capacity is low to moderate. Runoff is slow. Seasonal high water table is found at depths greater than 6 feet. Natural fertility is low and the soil is very acid. Pine and oak trees may be found growing in this soil type. The soil has a loose sandy surface and is easily worked.

DpA - Downer Sandy Loam, 0 to 2 percent slopes

This is a nearly level well drained soil type normally found on

Attachment B5



divides. Slopes, when present, are convex. The permeability of this soil is moderate in the subsoil and moderately rapid in the substratum. Available water capacity is moderate and runoff is slow. Seasonally high water table is found at depths greater than 6 feet. Natural fertility of this soil is medium and it is very acid in nature. The soil is very easily worked. Most areas of this soil type are wooded or used for pasture. While this soil is suited for trees, the pasture land is limited by the moderate available water capacity. This soil type has few limitations for urban uses.

DrB - Downer Gravelly Sandy Loam, Gravelly Substratum, 2 to 5 percent slopes

This gently sloping, well drained soil is located on divides and side slopes. Slopes are mostly convex. The permeability of this soil is moderate in the subsoil and moderately rapid in the substratum. Available water capacity is also moderate. Runoff is slow. Natural fertility of this soil is medium and it is very acid. There is a moderate erosion associated with this soil type but it is generally considered suitable for crops, pasture or woodlot. Most areas of this soil type are wooded with pines and oaks. The soil is generally suitable for most urban uses.

PM - Pits, Sand and Gravel

This is an area of deep, excessively drained to very poorly drained soil material that is predominantly made up of the spoil in a sand and gravel pit during mining and after mining has taken place. Slopes range from nearly level bottoms to vertical walls around the excavation. Most of this area is idle but some is being used for landfilling



operations. The soil material is dominantly sandy and is 5 to 35 percent gravel. Permeability is moderately rapid to rapid. Available water capacity is low, most areas receive moderate to large amounts of water from areas adjacent to the pits. The water table is between the surface and a depth of more than 5 feet.

PW - Psamments, Waste Substratum

This is the area where approximately 2 feet of sandy fill has been placed over the sanitary landfill. The surface in most places has been smoothed and compacted, and the areas are nearly level or gently sloping. The thickness of the fill material ranges from 2 to 4 feet, and the thickness of the refuse is 10 to 40 feet. The permeability of the areas is moderate or moderately rapid in the upper 2 feet and variable below a depth of 2 feet. Water capacity is low in the fill material.

Since the soil maps prepared for Ocean County by the Soil Conservation District were designed to show general soil characteristics, field investigations and site specific soil borings were performed at the Lakewood Municipal Landfill site. Attached drawings 1 through 4 show the location of each soil boring and the soil profiles have been included on Plate 6. Most of these borings were used to examine soil characteristics and to accomplish the installation of a groundwater monitoring well. These test wells are further discussed in another section. The borings and wells are then numbered from 1 through 9. These borings were completed during the week of May 11, 1981.

In addition a boring was completed through the area previously landfilled. Here special attention was given not to soil types but to depth of fill and water table elevations.



The test borings and field investigations confirmed the information developed by the SCS. In addition to checking the SCS data, the borings were used to establish water table elevations and to locate any significant sub-surface soil condition, such as a major clay layer. For each soil boring performed, a brief discussion has been prepared and follows.

PN-1

This soil boring is located to the west of the landfill near the adjacent railroad tracks. The elevation of the water table in this location was approximately 12 feet, 6 inches below the surface. The first several inches excavated here showed a sandy topsoil composition with dense to fine sand predominating to a depth of 8 feet. Traces of clay were observed from between 8 feet, 6 inches and 11 feet 6 inches. Below the surface of the water table, fine sand material was present to a depth of 27 feet where the boring was completed.

PN-2

Located just south of the area presently being filled, approximately a foot of topsoil was found at the surface. Below this, to a depth of approximately 20 feet, sand is the major constituent of the soil. The surface of the groundwater was 21 feet deep on the date the boring was conducted. A thin clay layer was then observed (approximately 23 feet below the surface) followed by dense, fine sand to a depth of 35 feet, where this boring was concluded.

PN-3

Located south of the landfill and due east of PN-2, PN-3 was drilled in an area previously excavated for sand extraction. Dense fine





sands were encountered throughout this boring. The water table was observed at 6.5 feet with dense wet sands to a depth of 14 feet. From 14 to 20 feet below ground level, the sand remained fine but was noted as being loose in nature. The test boring was completed 20 feet below the surface.

#### PN-4

The test boring was performed east of the landfill in the area known as Stavola's pit. PN-4 revealed a groundwater table 8 feet below the surface. Above this, 8 feet of dense, fine sand was observed. A trace of clay was present between 11 and 12 feet. Dense, fine sand was the soil condition to 22 feet below ground level where the test boring was concluded.

#### PN-5

East of the present landfill and north of PN-4, PN-5 revealed water at a depth of 11.5 feet below the surface. The predominant soil material here was also dense, fine sand. In the first 2.5 feet of excavation, trace amounts of medium fine gravel were found. From the surface to the groundwater at a depth of 16 feet below ground, dense sand was again apparent. From 16 to approximately 17 feet, clay was excavated. This was again replaced by dense fine sand to the conclusion of the test boring 27 feet below the ground level.

#### PN-6

Far to the east of the landfill in an area that appears to have once been used for sand extraction is the test boring PN-6. The first 9 feet of excavation here uncovered a dense, fine sand until water was encountered 9 feet below the surface. From 9 to 22 feet deep, the only



soil material observed was a dense, wet, fine sand. This soil boring was completed at 22 feet below grade.

PN-7

Located south of PN-3, PN-7 was drilled to a depth 32 feet below ground level. The first 2 feet of excavation here showed sandy topsoil and sand. From 2 to 14 feet, sand with trace amounts of clay was noted. The mid-May 1981 groundwater table was uncovered 18 feet below the surface. Fine sand was again the predominant soil material from 18 to 26 feet. At 26 feet below grade, a clay layer approximately 1 foot thick was observed. Dense, wet, fine sand replaced this clay and continued to a depth of 32 feet at which depth the test boring was completed.

PN-8

This soil boring is located north of the landfill near the road presently used for landfill access. Fine sand again predominated to a depth of 19 feet. Between 3 feet and 12 feet deep, a trace of coarse sand was discovered. Between 19 and 21 feet below grade, dense wet sand and a trace of clay was noted. Below 21 feet; dense, fine, wet sand was common to a depth of 32 feet below the surface where the boring was concluded.

PN-9

North of PN-1 along the railroad, PN-9 showed a groundwater depth 24 feet below grade. The initial excavation at this site included a thin layer of topsoil in the first 10 inches followed by sand to a depth of 19 feet. 19 feet below the surface, a thin clay layer was encountered to be quickly replaced by sand. Below this, dense wet fine sand was observed to a depth of 37 feet where this soil boring was concluded.



In addition to the soil borings performed, a boring was made through the previously filled garbage to find the distance between the bottom of the fill and the water table. The fill was found to extend 40 feet below the surface. Below the fill, 8 feet of dry sand with sand and mixed fill were found to a depth of 48 below grade. The top surface of the groundwater table was observed 48 feet below the surface. Wet sand was the common soil material to a depth of 60 feet where the soil boring was concluded.

In general, the soil borings showed what could be expected from viewing the soil service maps. The water table was found at considerable depth even though the borings were conducted after a period of very heavy rains. The garbage boring showed approximately 8 feet separated the bottom of the fill material and the water table in that area. Sand was the predominant soil material encountered throughout the boring. Most of the sand observed was fine and dense. Clay seems to occur in isolated lenses and was not observed in any significant amounts above the water table.

In the proposed expansion of the Lakewood Landfill, Phase I involves movement to the east where an already disturbed soil condition is present. Permeability in this area is fairly rapid and the water table is relatively close to the surface, since most of the overburden has been previously mined out. The area for Phase II expansion contains soils and ground conditions suitable for a lined landfill operation.



### 2.1.3 Topography

The topography of the Lakewood site has been extensively modified by landfilling and sand mining operations. In general, areas surrounding the site are relatively flat to gently rolling. Within the site, elevations vary from approximately 90 feet to 125 feet. In general topographic terms, the site lies on a plateau with slopes trending to the southwest toward the Toms River and northeast toward the Metedeconk River. The plateau actually forms a broad flat ridge which lies on a northwest-southeast axis. Both major rivers, which form "valleys" draining the area, lie at an elevation of approximately 50 feet. Plate 2 and drawing 1 through 4 show both area-wide and site specific topographic patterns.



#### 2.1.4 Hydrological Features

An evaluation of groundwater quality and flow patterns were made at the Lakewood site to determine the impact of existing landfilling operations. In order to accomplish this, data was required regarding subsurface soil conditions and groundwater elevations. Since only one monitoring well is present on the site, available data was limited.

Soils data was obtained from the soil boring program previously discussed. When the borings were placed, groundwater elevations were noted and recorded. In order to assess groundwater quality, a series of nine monitoring wells were installed. As an initial screening, the wells were placed in a ring which encircled the landfill so that any contaminant plumes which were migrating away from the site could be intercepted. These wells permitted subsequent groundwater sampling and water table elevation measurements. Groundwater elevations on the site varied between 60 and 70 feet in most cases. However, the highly irregular nature of site topography results in scattered groundwater mounds which make interpretation of small elevation differences difficult. With surface drainage from the site moving toward the Toms River, and a general topographic tilt in that direction, it is likely that groundwaters will move in that direction. The elevation of the Toms River is at approximately 50 feet at its nearest downgradient position, or 10 to 20 feet below the water table elevations on-site.

Groundwater samples were taken from the newly installed monitoring wells, from existing on-site wells, and from selected residential wells in the vicinity of the landfill during the last week in May (1981), and again on June 19, 1981, July 1, 1981, and July 28, 1981.

Thirty-two different water quality analyses were performed although not all tests were performed on all samples. The parameters tested included a wide range of water quality indicators, conventional pollutants, heavy metals, and volatile organics. With the exception of fluoride, cyanide, mercury, arsenic and selenium, all tests were conducted by the Ocean County Health Department. Samples were tested for mercury at E.T. Killam Associates' laboratory, and the remaining four parameters were tested by Henderson Laboratories, Beechwood, NJ. Appropriate water quality standards for the parameters tested are listed on Table 5. It should be noted that primary standards are established at levels to protect human health. Secondary standards are intended to prevent nuisance conditions in drinking water, such as unpleasant tastes, staining of laundry, etc. Appendix A contains a tabulation of the data which was collected during the sampling program. Data are rounded to an appropriate number of significant figures. Levels of benzene, toluene, ethylbenzene, and xylenes which were either not detectable or were indicated at levels between .0005 and .001 part per million are reported as "less than" .001 part per million. This was done because the reliability of instrument readings in the range of .001 part per million (or one part per billion) is questionable.

Presented below is a discussion of the results generated for each monitoring well. Well locations are shown on Drawings 1 through 4.

EN-1

This is the only pre-existing monitoring well located at the Lakewood site. Total dissolved solids (TDS) found at this location ranged from 39 to 65 parts per million (ppm). TDS is a good overall water



TABLE 5  
GROUNDWATER QUALITY STANDARDS

<u>PARAMETER</u>	<u>PRIMARY STANDARDS</u>	<u>SECONDARY STANDARDS</u>
PH		5-9
Hardness		
Sulfate		250 ppm
TDS		500 ppm
Nitrate-Nitrogen	10.0 ppm	
Ammonia		0.5 ppm
MBAS		0.5 ppm
Phenols		0.3 ppm
BOD		
COD		
Chloride		250 ppm
Odor		
Fluoride		2.0 ppm
Cyanide	0.2 ppm	
Chromium	0.05 ppm	
Mercury	0.002 ppm	
Lead	0.05 ppm	
Iron		0.3 ppm
Manganese		0.05 ppm
Zinc		5.0 ppm
Copper		1.0 ppm
Cadmium	0.01 ppm	
Barium	1.0 ppm	
Silver	0.05 ppm	
Sodium		50 ppm
Arsenic	0.05 ppm	
Selenium	0.01 ppm	
Benzene		
Toluene		
Ethylbenzene		
Xylene		

\* Source: D.E.P., GW-2 Standards, Federal Drinking Water Standards



quality indicator as uncontaminated groundwaters in the area will contain TDS levels generally less than 50 ppm and as low as 20 ppm. Therefore, EN-1 with a maximum of 65 ppm of TDS exhibits very little influence on this parameter from the landfill.

Iron was found at levels from 2.0 to 30.6 ppm. Iron is found in Ocean County soils in significant amounts. It is frequently a problem in potable water supplies causing taste problems and staining laundry. The presence of leachate in groundwater increases the solubility of iron and can result in very high concentrations. The presence of diluted leachate may be responsible for elevated levels of iron. Manganese is commonly found with iron and is also found at elevated levels where organic contamination exists. Samples taken from EN-1 were found to violate both the secondary Iron and Manganese standards.

Four volatile organic compounds were tested for, including benzene, toluene, ethylbenzene, and xylenes. A low level of .006 ppm of xylene was found on one occasion.

Overall, this well exhibited fairly good water quality for a landfill monitoring well in its location.

#### Landfill Blockhouse

Total Dissolved Solids were measured at levels which are near background (up to 58 ppm). Only iron and manganese exceeded the standard. Overall, water quality was fairly good.

#### PN-1

This well lies along the railroad tracks which border the landfill. TDS was measured at levels to a maximum of 49 ppm. Only Iron





exceeded water quality standards. Overall, water quality was judged good for a landfill monitoring well.

#### PN-2

This well lies several hundred feet from the landfill in a down-gradient direction. That is, it lies between the fill and the Toms River in the direction which groundwaters were expected to move. Predictably, this well showed the greatest effect from the landfill. TDS ranged from 360 to 533 ppm, well above background and slightly above the 500 ppm secondary standard. Manganese and iron (in particular) levels were significantly elevated, with iron present at a concentration of 364 ppm. Sodium was found to exceed the secondary standard of 50 ppm by a slight amount. Chromium was also found at levels above background. Tests on all three dates showed positive and significant results for the four volatile compounds tested. Ethylbenzene and xylenes were found at levels higher than benzene and toluene. On two of the three sampling dates, the concentration of these four compounds totalled approximately .5 ppm. Future tests for other organics are indicated by these results.

Overall, the results for PN-2 indicate the presence of leachate as would be expected from an unlined landfill.

#### PN-3

PN-3 is located near PN-2 and is also downgradient from the landfill. Mechanical difficulties with this well required its removal after the first sampling date. From a limited sample, an elevated TDS value of 369 ppm was obtained, also indicating the presence of diluted leachate.

PN-4

This well is located in the area known as Stavola's pit, which is adjacent to the landfill. PN-4 is located approximately 300 feet from the fill. TDS levels found on two sampling dates were 27 and 37 ppm, or near background. Manganese was not detected but iron exceeded the standard to a maximum of 9.2 ppm. For a landfill monitoring well, water quality was good.

PN-5

This well is also located in Stavola's pit approximately 400 feet from the fill. TDS averaged 55 ppm, but iron was quite high at 198 ppm on one date but 13.9 ppm on another. Other parameters indicated fairly good water quality.

PN-6

This well is located in Stavola's pit but is over 2,000 feet from the fill. TDS was measured to a maximum of 67 ppm, slightly above background. Manganese exceeded the standard by a small margin on one occasion, but iron was present in high concentrations (up to 49 ppm). Other parameters which might indicate organic contamination were present at reasonably low levels.

PN-7

This well is located south of the fill at a distance of approximately 900 feet. TDS was measured to a maximum of 53 ppm, slightly above standard. Iron exceeded the standard with values up to 10 ppm. Lead also exceeded the standard on two of three occasions with a high reading of 1.1 ppm. A positive reading was also noted for xylene in two samples with levels of .004 and .014 ppm.

PN-8

This well is located along the access road to the fill at a distance of approximately 300 feet. TDS was measured up to 42 ppm, which is near background. Iron and manganese were above standard, with iron at a maximum of 69 ppm and manganese at .21 ppm. Xylene was found at a level of .009 ppm in one sample. Other indicators of organic contamination were found at low levels.

PN-9

This well was also located adjacent to the railroad tracks which border the landfill. TDS was measured at 47 and 66 ppm. Iron was the only parameter to exceed the standard.

In addition to the on-site wells tested, a number of residential wells were tested. These included the following:

Lehman

The Lehman residence is located on Whitesville Road. This well is shallow in depth (approximately 25 feet) and is located approximately 2500 feet downgradient from the landfill. TDS was elevated, with levels between 250 and 300 ppm. Interpretation of these results is complicated by the fact that a water softener has been installed by the homeowner. Iron, which was present at relatively low levels, may be significantly higher in the raw water supply. Sodium was present at an elevated level, but this (and possibly TDS) may be partially accounted for by the softening device. Nonetheless, the water sample exhibited a marked odor, and trace amounts of xylene (.004 ppm) were found in one sample. This residence is downgradient from the landfill; in the direction of and beyond PN-2.

08

Frady,

The Frady residence is near Lehman and is also downgradient from the landfill. TDS levels were much lower at 52 and 60 ppm. Iron and manganese exceeded the standard, but were substantially lower than other wells near the landfill. Trace amounts of Ethylbenzene and xylene (.002 ppm each) were found in one sample. Mercury was also found at the standard.

Plumb

This is another residence on Whitesville Road which lies in a downgradient direction from the landfill. TDS was measured at 42 ppm. Only manganese violated the standard.

Buzby

The Buzby residence is located on Faraday Road and is fairly close to the landfill. TDS was measured at 27 and 37 ppm and all reported parameters met the standard.

Well Jersey Aluminum

This well is situated near the corner of Whitesville and Faraday Road. Iron was above standard at 1 ppm, but other parameters were within acceptable limits.

Werbler

The Werbler residence is located on Cross Street in Lakewood. TDS was elevated in two samplings at 162 and 164 ppm. However, this well also exhibited high levels of nitrate, exceeding the standard in one case. High nitrate levels were not evident in near field monitoring wells, hence this is likely to be an unrelated problem possibly caused by a septic tank or agricultural runoff.

Lombardi

This well, near Massachusetts Avenue, exhibited generally good water quality except for an elevated level of copper. This is likely the result of corrosion of copper piping in the home from somewhat acid groundwaters.

Sitton Septic

This well is located near the access road to the landfill, off Cross Street. TDS was noted to be somewhat elevated, and iron exceeded the standard. Whether the elevated TDS is a result of the landfill is uncertain but possible. Except for the slightly elevated iron level, water quality at this location was generally good.

Four other homeowners along Whitesville Road were sampled, but were further removed from the landfill than the Frady, Lehman and Pierson residences discussed previously. Except for iron, these wells exhibited good water quality with no indications of any effect from the landfill.

In terms of overall groundwater conditions, the work done and data developed to date indicate that the landfill is currently having an impact on adjacent groundwaters. Most significant is the migration of contaminants from the fill in the direction of PN-2 and Whitesville Road. While PN-2 is significantly affected by the landfill, a comparison between this well and downgradient wells on Whitesville Road shows contaminant levels much lower at the latter locations. Data for other landfill wells shows varying indications of groundwater impact, as evidenced by elevated iron levels, traces of volatile organics, and low levels of lead in one case. Adjacent homeowners generally have acceptable water quality (except for iron) however, several samples show readings for certain parameters which are above background but within standard.



These data point to the groundwater contamination potential that an unlined facility has in a location such as this. Since the garbage boring indicated that solid waste was above the water table, this facility should be amenable to mitigation of the existing groundwater effects by appropriate closure techniques.

No effect from the landfill can be determined in examining data for the Toms River. However, the River is quite distant from the landfill. This would make such an effect very difficult, if not impossible, to measure.

# NORTHERN LANDFILL SAMPLING

## WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO.EN-1

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms	<10		
Fecal Coliforms	<10		
PH	6.5	6.3	5.9
Hardness	14	18	13
Sulfate	6.0	3.7	9.4
TDS	39	65	45
Nitrite & Nitrate	.42	.36	1.3
MBAS	.04	<.01	<.01
Phenols	.001	.002	.002
BOD		6.0	560.0
COD	5.6	3.2	10.0
Chloride	15	8	4.0
Odor	200	16	20.0
Fluoride	<.05	.10	<.05
Cyanide	<.02	<.02	<.02
Chromium	<.06	<.06	<.06
Mercury	<.001 (7/28/81)		
Lead	<.1	<.1	<.1
Iron	3.6	2.0	30.6
Manganese	.39	.02	.20
Zinc	.22	.01	.09
Copper	.05	<.03	.03
Cadmium	<.01	<.01	<.01
Barium	<.1	<.1	.16
Silver	<.03	<.03	<.03
Arsenic	<.005	7.02	2.94
Selenium	<.005	<.005	<.005
Benzene	<.001	<.001	<.001
Toluene	<.001	<.001	<.001
Ethylbenzene	<.001	<.001	<.001
Xylene	<.001	.006	<.001

Note: All results expressed as parts per million.

< means less than, typical all sheets

ATTACHMENT

C1

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PN-1

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms	43		
Fecal Coliforms			
PH	6.0	5.8	5.5
Hardness	18	10	10
Sulfate	12	8	8.3
TDS	49	35	41
Nitrite & Nitrate	.07	.10	.09
MBAS	.02	.03	.01
Phenols	.001	.003	.002
BOD		<.1	40.0
COD	.8	8.4	10.0
Chloride		8	9
Odor		2	1
Fluoride	<.05	<.05	<.05
Cyanide	<.02	<.02	<.02
Chromium	<.06	<.06	<.06
Mercury			
Lead	<.1	<.1	<.1
Iron	20.9	8.1	3.28
Manganese	.03	<.02	.02
Zinc	.03	.03	.02
Copper	<.03	<.03	<.03
Cadmium	<.01	<.01	.01
Barium	<.1	<.1	.12
Silver	<.03	<.03	<.03
Sodium	5.3	5.7	4.88
Arsenic	<.005	<.005	<.005
Selenium	<.005	<.005	<.005
Benzene	<.001	<.001	<.001
Toluene	<.001	<.001	<.001
Ethylbenzene	<.001	<.001	<.001
Xylene	<.001	<.001	<.001

Note: All results expressed as parts per million.

ATTACHMENT C2



NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PN-2

<u>Parameter</u>	<u>5/28/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms	<10		
Fecal Coliforms	<10		
PH	7.2	6.8	7.2
Hardness	20	220	240
Sulfate	7	<.1	1.7
TDS	360	533	528
Nitrite & Nitrate	.1	.06	.08
MBAS	.01	.06	.05
Phenols	.017	.042	.027
BOD		48.0	590.0
COD	22.4	21.6	144.0
Chloride	105	80	71
Odor	32	100	200
Fluoride	<.05	<.05	.1
Cyanide	<.02	<.02	<.02
Chromium	.26	.07	.09
Mercury		.001(7/28/81)	
Lead	<.1	.1	<.1
Iron	364.0	165.8	160.1
Manganese	.26	.12	.12
Zinc	.11	.11	.04
Copper	.19	.08	.09
Cadmium	<.01	<.01	.01
Barium	<.1	<.1	<.1
Silver	<.03	<.03	<.03
Sodium	39.23	55.4	55.7
Arsenic	<.005	<.005	<.005
Selenium	<.005	<.005	<.005
Benzene	.002	.008	.009
Toluene	.005	.009	.009
Ethylbenzene	.075	.194	.204
Xylene	.090	.206	.229

Note: All results expressed as parts per million.

ATTACHMENT C3

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PN-3

Parameter                      5/27/81

Total Coliforms  
Fecal Coliforms

PH	7.4
Hardness	83
Sulfate	12.5
TDS	369
Nitrite & Nitrate	.61
MBAS	.03
Phenols	.03
BOD	
COD	28.8
Chloride	110
Odor	
Fluoride	
Cyanide	

Chromium  
Mercury  
Lead  
Iron  
Manganese  
Zinc  
Copper  
Cadmium  
Barium  
Silver  
Sodium  
Arsenic  
Selenium

Benzene	<.001
Toluene	<.001
Ethylbenzene	<.001
Xylene	.001

Note: All results expressed as parts per million.

ATTACHMENT C4

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PN-4

<u>Parameter</u>	<u>5/27/81</u>	<u>7/1/81</u>
Total Coliforms		
Fecal Coliforms		
PH	6.4	5.6
Hardness		10
Sulfate		6.8
TDS	37	27
Nitrite & Nitrate	.23	.27
MBAS	.02	.01
Phenols	.002	.002
BOD		<.1
COD		1.6
Chloride	45	4
Odor		2
Fluoride	<.05	<.05
Cyanide	<.02	<.02
Chromium	<.06	<.06
Mercury		
Lead	<.1	<.1
Iron	9.2	6.27
Manganese	<.02	<.02
Zinc	.02	.03
Copper	<.03	<.03
Cadmium	<.01	<.01
Barium	<.1	.22
Silver	<.03	<.03
Sodium	2.6	1.79
Arsenic	<.005	<.005
Selenium	<.005	<.005
Benzene	<.001	<.001
Toluene	<.001	<.001
Ethylbenzene	<.001	<.001
Xylene	<.001	<.001

Note: All results expressed as parts per million.

ATTACHMENT C5

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PN-5

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>
Total Coliforms		
Fecal Coliforms		
PH	5.6	5.6
Hardness	18	10
Sulfate	14	10
TDS	56	54
Nitrite & Nitrate	.29	.17
MBAS	<.01	.02
Phenols		.031
BOD		4.0
COD	2.0	11.2
Chloride	40	5
Odor		
Fluoride	<.05	
Cyanide	<.02	
Chromium	.16	<.06
Mercury		.001 (7/28/81)
Lead	<.1	<.1
Iron	198.2	13.92
Manganese	.06	.02
Zinc	.07	.08
Copper	.06	.05
Cadmium	<.01	<.01
Barium	<.1	<.1
Silver	<.03	<.03
Sodium	3.9	5.85
Arsenic	<.005	
Selenium	<.005	
Benzene	<.001	<.001
Toluene	<.001	<.001
Ethylbenzene	<.001	<.001
Xylene	<.001	<.001

Note: All results expressed as parts per million.

ATTACHMENT C6.

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PN-6

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms			
Fecal Coliforms			
PH	6.6	5.6	5.7
Hardness		10	10
Sulfate		8.2	5.6
TDS	67	61	51
Nitrite & Nitrate	.29	.34	.43
MBAS	.01	.05	.01
Phenols	<.001	.002	.004
BOD		8.0	210.0
COD	<.1	1.6	<.1
Chloride	6	5	4
Odor		1	2
Fluoride	<.05	<.05	<.05
Cyanide	<.02	<.02	<.02
Chromium	<.06	<.06	<.06
Mercury			
Lead	<.1	<.1	<.1
Iron	48.6	21.9	4.34
Manganese	.06	.04	.02
Zinc	.04	.02	.07
Copper	<.03	<.03	<.03
Cadmium	<.01	<.01	<.01
Barium	<.1	<.1	<.1
Silver	<.03	<.03	<.03
Sodium	3.5	4.1	3.02
Arsenic	<.005	<.005	<.005
Selenium	<.005	<.005	<.005
Benzene	<.001	<.001	<.001
Toluene	<.001	<.001	<.001
Ethylbenzene	<.001	<.001	<.001
Xylene	<.001	<.001	<.001

Note: All results expressed as parts per million.

ATTACHMENT C7-

# NORTHERN LANDFILL SAMPLING

## WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PN-7

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms			
Fecal Coliforms			
PH		5.9	5.4
Hardness		4	15
Sulfate		5.6	4.3
TDS		35	53
Nitrite & Nitrate		.12	.20
MBAS		.02	<.01
Phenols		.013	.003
BOD		<.1	47.0
COD	8	4.8	12.0
Chloride		4	35
Odor		1	4
Fluoride		<.05	<.05
Cyanide		<.02	<.02
Chromium	<.06	<.06	<.06
Mercury			
Lead	1.1	<.1	.19
Iron	10.2	.73	1.77
Manganese	.05	<.02	<.02
Zinc	.05	.04	.29
Copper	.08	<.03	.03
Cadmium	<.01	<.01	.01
Barium	<.1	<.1	<.1
Silver	<.03	<.03	<.03
Sodium	4.3	4.4	2.35
Arsenic		<.005	<.005
Selenium		<.005	<.005
Benzene		<.001	<.001
Toluene		<.001	<.001
Ethylbenzene		<.001	<.001
Xylene		.014	.004

Note: All results expressed as parts per million.

ATTACHMENT CB

# NORTHERN LANDFILL SAMPLING

## WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PM-8

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms	<10		
Fecal Coliforms	<10		
PH	5.5	4.9	5.3
Hardness	10	4	5
Sulfate	8	3.5	1.5
TDS	20	42	25
Nitrite & Nitrate	.15	.23	.28
MBAS	.01	.01	.03
Phenols	.037	.005	.002
BOD		<.1	340.0
COD	2.8	5.2	14.4
Chloride	40	5	5
Odor	4	4	2
Fluoride	<.05	<.05	.1
Cyanide	<.02	<.02	<.02
Chromium	<.06	<.06	<.06
Mercury	.001 (7/28/81)		
Lead	<.1	<.1	<.1
Iron	68.9	3.51	2.10
Manganese	.21	.08	.05
Zinc	.04	.43	.04
Copper	.13	.12	.04
Cadmium	<.01	<.01	<.01
Barium	<.1	<.1	.15
Silver	<.03	<.03	<.03
Sodium	3.42	4.34	2.48
Arsenic	<.005	<.005	<.005
Selenium	<.005	<.005	<.005
Benzene	<.001	<.001	<.001
Toluene	<.001	<.001	<.001
Ethylbenzene	<.001	<.001	<.001
Xylene	<.001	.0095	<.001

Note: All results expressed as parts per million.

ATTACHMENT C9

# NORTHERN LANDFILL SAMPLING

## WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PN-9

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms			
Fecal Coliforms			
PH		3.8	6.1
Hardness		11	8
Sulfate		8.0	9.4
TDS		66	47
Nitrite & Nitrate		3.7	.29
MBAS		.03	.01
Phenols		<.001	.003
BOD		1.0	350.0
COD		8.0	1.2
Chloride		12	13
Odor		4	1
Fluoride		<.05	.1
Cyanide		<.02	<.02
Chromium	<.06	<.06	<.06
Mercury			
Lead		<.1	<.1
Iron	35	8.15	2.05
Manganese		<.02	<.02
Zinc	.1	.05	.16
Copper		.03	.04
Cadmium	<.01	<.01	.01
Barium	<.1	<.1	<.1
Silver	<.03	<.03	<.03
Sodium	4.99	8.05	7.35
Arsenic		<.005	<.005
Selenium		<.005	<.005
Benzene		<.001	<.001
Toluene		<.001	<.001
Ethylbenzene		<.001	<.001
Xylene		.001	<.001

Note: All results expressed as parts per million.

ATTACHMENT C10



NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. LANDFILL HOUSE

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms	<2		
Fecal Coliforms	<2		
PH	5.4	5.2	5.8
Hardness	16	15	18
Sulfate	14.8	14	15
TDS	47	58	51
Nitrite & Nitrate	.8	.5	.55
MBAS	.02	<.01	<.01
Phenols	.006	.001	.005
BOD	<.1	3.0	1.8
COD	4	6.4	4.4
Chloride	5	6	6
Odor		1	4
Fluoride	<.05	.10	.1
Cyanide	<.02	.02	<.02
Chromium	<.06	<.06	<.06
Mercury		<.001 (7/28/81)	
Lead	<.1	<.1	<.1
Iron	.49	.73	3.02
Manganese	.05	.05	.09
Zinc	.06	.03	.08
Copper	<.03	<.03	<.03
Cadmium	<.01	<.01	<.01
Barium	<.1	<.1	.1
Silver	<.03	<.03	<.03
Sodium	5.4	4.8	3.9
Arsenic	<.005	<.005	<.005
Selenium	<.005	<.005	<.005
Benzene	<.001	<.001	<.001
Toluene	<.001	<.001	<.001
Ethylbenzene	<.001	<.001	<.001
Xylene	<.001	<.001	<.001

Note: All results expressed as parts per million.

ATTACHMENT C12

# NORTHERN LANDFILL SAMPLING

## WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. LEHMAN

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms	<2		
Fecal Coliforms	<2		
PH	5.7	7.2	7.2
Hardness	3	10	1
Sulfate	6	16	21.0
TDS	252	297	285
Nitrite & Nitrate	.01	.03	.05
MBAS	.02	.02	.02
Phenols		.072	.002
BOD		21.6	6.6
COD		68.4	2.4
Chloride	22	27	31
Odor		16	20
Fluoride		.10	
Cyanide		<.02	
Chromium		<.06	<.06
Mercury	.001 (7/28/81)		
Lead		<.1	<.1
Iron		.31	.02
Manganese		<.02	<.02
Zinc		.03	.02
Copper		.09	<.03
Cadmium		<.01	<.01
Barium		<.1	.16
Silver		<.03	<.03
Sodium		95.9	97.84
Arsenic		<.005	
Selenium		<.005	
Benzene	<.001	<.001	<.001
Toluene	<.001	<.001	<.001
Ethylbenzene	<.001	<.001	<.001
Xylene	<.001	.004	<.001

Note: All results expressed as parts per million.

Attachment C13

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. FRADY

<u>Parameter</u>	<u>5/27/81</u>	<u>7/1/81</u>
Total Coliforms	<2	
Fecal Coliforms	<2	
PH	6.3	5.6
Hardness	12	13
Sulfate	6.3	8.5
TDS	52	60
Nitrite & Nitrate	.09	.14
MBAS	.01	.02
Phenols	.003	.003
BOD	2.7	.3
COD	4.8	8.4
Chloride	11	13
Odor	2	4
Fluoride	<.05	.1
Cyanide	<.02	.02
Chromium	<.06	<.06
Mercury		.002 (7/28/81)
Lead		<.1
Iron	3.0	.40
Manganese	.07	.05
Zinc	.18	.03
Copper	<.03	.06
Cadmium	<.01	<.01
Barium	.17	<.1
Silver	<.03	<.03
Sodium	12.1	8.89
Arsenic	<.005	<.005
Selenium	<.005	<.005
Benzene	<.001	<.001
Toluene	<.001	<.001
Ethylbenzene	<.001	.002
Xylene	<.001	.002

Note: All results expressed as parts per million.

ATTACHMENT C-14

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. BUZBY

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>
Total Coliforms	<2	
Fecal Coliforms	<2	
PH	5.7	6.1
Hardness	8	12
Sulfate	7.4	
TDS	27	37
Nitrite & Nitrate	.05	.07
MBAS	.01	.02
Phenols	.002	
BOD	<.1	
COD	3.2	
Chloride	5	5
Odor		
Fluoride	<.02	
Cyanide	.15	
Chromium	<.06	
Mercury	<.001 (7/28/81)	
Lead	<.1	
Iron	.18	
Manganese	<.02	
Zinc	.04	
Copper	.15	
Cadmium	<.01	
Barium	.11	
Silver	<.03	
Sodium	5.0	
Arsenic	<.005	
Selenium	<.005	
Benzene	<.001	
Toluene	<.001	
Ethylbenzene	<.001	
Xylene	<.001	

Note: All results expressed as parts per million.

ATTACHMENT C 15

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. SOUTH JERSEY ALUMINUM

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms	<2		
Fecal Coliforms	<2		
PH	5.8	6.2	5.8
Hardness		4	5
Sulfate	<.01		4.6
TDS	21	28	19
Nitrite & Nitrate	.08	.04	.04
MBAS	.01	.01	.02
Phenols	.004		
BOD			
COD			
Chloride	4	4	4
Odor	<1		
Fluoride	.02		
Cyanide	.15		
Chromium	<.06		
Mercury		<.001 (7/28/81)	
Lead	<.1		
Iron	.98		
Manganese	.03		
Zinc	.35		
Copper	.08		
Cadmium	<.01		
Barium	.16		
Silver	<.03		
Sodium	5.3		
Arsenic	<.005		
Selenium	<.005		
Benzene	<.001		
Toluene	<.001		
Ethylbenzene	<.001		
Xylene	<.001		

Note: All results expressed as parts per million.

**ATTACHMENT** C16

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. WERBLER

<u>Parameter</u>	<u>5/27/81</u>	<u>7/1/81</u>
Total Coliforms		
Fecal Coliforms		
PH	5.5	5.5
Hardness	52	49
Sulfate		2.6
TDS	164	162
Nitrite & Nitrate	7.0	12.2
MBAS	.01	.01
Phenols		.006
BOD		1.2
COD		2.4
Chloride	8	10
Odor		1
Fluoride		.1
Cyanide		<.02
Chromium		<.06
Mercury	<.001 (7/28/81)	
Lead		<.1
Iron		.17
Manganese		.11
Zinc		.04
Copper		.38
Cadmium		<.01
Barium		.15
Silver		.11
Sodium		3.98
Arsenic		<.005
Selenium		<.005
Benzene	<.001	<.001
Toluene	<.001	<.001
Ethylbenzene	<.001	<.001
Xylene	<.001	<.001

Note: All results expressed as parts per million.

ATTACHMENT C17

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. LOMBARDI

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>	<u>7/1/81</u>
Total Coliforms	<2		
Fecal Coliforms	<2		
PH	6.0	5.7	5.8
Hardness	13	18	14
Sulfate	12		1.0
TDS	43	58	48
Nitrite & Nitrate	2.5	2.4	2.3
MBAS	.02	.02	.01
Phenols	.003		
BOD	<.1		
COD	<.1		
Chloride	5	6	6
Odor	<1		
Fluoride	<.02		
Cyanide	.15		
Chromium	<.06		
Mercury		<.001 (7/28/81)	
Lead	<.1		
Iron	.12		
Manganese	<.02		
Zinc	.05		
Copper	2.15		
Cadmium	<.01		
Barium	<.1		
Silver	<.03		
Sodium	6.54		
Arsenic	<.005		
Selenium	<.005		
Benzene	<.001		
Toluene	<.001		
Ethylbenzene	<.001		
Xylene	<.001		

Note: All results expressed as parts per million.

**ATTACHMENT** CB

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. SITTON SEPTIC

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>
Total Coliforms	<2	
Fecal Coliforms	<2	
PH	6.2	6.2
Hardness	44	34
Sulfate	27.5	
TDS	84	109
Nitrite & Nitrate	.5	.5
MBAS	.02	.03
Phenols	.004	
BOD	1.5	
COD	4.4	
Chloride	11	14
Odor	<1	
Fluoride		
Cyanide		
Chromium	<.06	
Mercury		
Lead	<.1	
Iron	1.15	
Manganese	.05	
Zinc	.28	
Copper	<.03	
Cadmium	<.01	
Barium	<.1	
Silver	<.03	
Sodium	8.73	
Arsenic		
Selenium		
Benzene	<.001	
Toluene	<.001	
Ethylbenzene	<.001	
Xylene	<.001	

Note: All results expressed as parts per million.

ATTACHMENT C19



NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. PIERSON

<u>Parameter</u>	<u>5/27/81</u>
Total Coliforms	<2
Fecal Coliforms	<2
PH	5.5
Hardness	13
Sulfate	6.3
TDS	42
Nitrite & Nitrate	<.01
MBAS	.02
Phenols	.005
BOD	1.8
COD	2.8
Chloride	6
Odor	3
Fluoride	<.02
Cyanide	.12
Chromium	<.06
Mercury	
Lead	<.1
Iron	.08
Manganese	1.9
Zinc	.04
Copper	<.03
Cadmium	<.01
Barium	<.1
Silver	<.03
Sodium	7.3
Arsenic	<.005
Selenium	<.005
Benzene	<.001
Toluene	<.001
Ethylbenzene	<.001
Xylene	<.001

Note: All results expressed as parts per million.

ATTACHMENT CW

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. CONNAGHAN

<u>Parameter</u>	<u>5/27/81</u>
Total Coliforms	<2
Fecal Coliforms	<2
PH	5.9
Hardness	6
Sulfate	
TDS	21
Nitrite & Nitrate	.06
MBAS	<.01
Phenols	
BOD	
COD	
Chloride	2
Odor	
Fluoride	
Cyanide	
Chromium	
Mercury	
Lead	
Iron	
Manganese	
Zinc	
Copper	
Cadmium	
Barium	
Silver	
Sodium	
Arsenic	
Selenium	
Benzene	<.001
Toluene	<.001
Ethylbenzene	<.001
Xylene	<.001

Note: All results expressed as parts per million.

ATTACHMENT 021

NORTHERN LANDFILL SAMPLING

WATER TESTIN PROGRAM

SAMPLE IDENTIFICATION: WELL NO. NOWAK

<u>Parameter</u>	<u>5/27/81</u>	<u>6/19/81</u>
Total Coliforms	<2	
Fecal Coliforms	<2	
PH	5.5	6.2
Hardness	3	3
Sulfate	1.5	
TDS	17	26
Nitrite & Nitrate	.07	.14
MBAS	.01	.02
Phenols	<.001	
BOD	.01	
COD	2.4	
Chloride	2	4
Odor	<1	
Fluoride	<.02	
Cyanide	<.05	
Chromium	<.06	
Mercury		
Lead	<.1	
Iron	.76	
Manganese	<.02	
Zinc	.06	
Copper	.24	
Cadmium	<.01	
Barium	<.1	
Silver	<.03	
Sodium	4.7	
Arsenic	<.005	
Selenium	<.005	
Benzene	<.001	
Toluene	<.001	
Ethylbenzene	<.001	
Xylene	<.001	

Note: All results expressed as parts per million.

ATTACHMENT C22

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. RUZICKA

<u>Parameter</u>	<u>5/27/81</u>
Total Coliforms	<2
Fecal Coliforms	<2
PH	5.6
Hardness	2
Sulfate	
TDS	16
Nitrite & Nitrate	<.01
MBAS	.02
Phenols	
BOD	
COD	
Chloride	2
Odor	
Fluoride	
Cyanide	
Chromium	
Mercury	
Lead	
Iron	
Managenese	
Zinc	
Copper	
Cadmium	
Barium	
Silver	
Sodium	
Arsenic	
Selenium	
Benzene	<.001
Toluene	<.001
Ethylbenzene	<.001
Xylene	<.001

Note: All results expressed as parts per million.

ATTACHMENT C23

NORTHERN LANDFILL SAMPLING

WATER TESTING PROGRAM

SAMPLE IDENTIFICATION: WELL NO. JANORA

<u>Parameter</u>	<u>5/27/81</u>
Total Coliforms	<2
Fecal Coliforms	<2
PH	6.2
Hardness	7
Sulfate	
TDS	15
Nitrite & Nitrate	.04
MBAS	.02
Phenols	
BOD	
COD	
Chloride	1
Odor	
Fluoride	
Cyanide	
Chromium	
Mercury	
Lead	
Iron	
Manganese	
Zinc	
Copper	
Cadmium	
Barium	
Silver	
Sodium	
Arsenic	
Selenium	
Benzene	<.001
Toluene	<.001
Ethylbenzene	<.001
Xylene	<.001

Note: All results expressed as parts per million.

ATTACHMENT C24

CERTIFICATION  
of Approved  
REGISTRATION STATEMENT FOR A SOLID WASTE FACILITY

Issued By

New Jersey Department of Environmental Protection

Bureau of Solid Waste Management

Township of Lakewood

This certifies that

Municipal Building., 231 Third Street., Lakewood, N.J. 08701

(name)  
(address)

has submitted an up-dated registration statement and has paid the annual  
fee of \$500 for the operation of a Sanitary Landfill

located on Lot Nos. 101-105

and Block Nos. 524

at Kennedy Ave., Lakewood, N.J. 08701

(address)

under Registration No. 15303001

for the purpose of disposal of the following approved classes of refuse  
Municipal ( Household, Commercial, Institutional), Dry Sewage Sludge,  
Bulky Waste, Construction, Demolition

and that said operator has submitted an engineering design which  
is approved

This Certification may be withdrawn for failure to comply with  
either the conditions or limitations which may be specified on the  
approved registration, or for failure to implement all features contained  
in the approved engineering design, or for failure to correct violations  
of any of the rules or regulations of the Department.

This Certificate  
Expires 6/30/75

*Bernard F. L...*  
For the Bureau of Solid Waste Management

ATTACHMENT 0



CEK.  
Exp. file  
1514A

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF ENVIRONMENTAL QUALITY

SOLID WASTE ADMINISTRATION

32 EAST HANOVER STREET, TRENTON, N. J. 08625

JACK STANTON  
DIRECTOR

LINO F. PEREIRA  
ADMINISTRATOR  
SOLID WASTE MANAGEMENT

August 10, 1981

Mr. Jim Gardner  
Suprv. Environmental Engineer  
Building 5  
Naval Air Engineering Center  
Lakehurst, NJ 08733

Dear Sir:

AIR-PA-101000  
An inspection by one of our field investigators of the Lakewood Landfill on April 13, 1981 at 12:15 p.m. revealed that a gas tank (welder's type) had exploded onsite. Specifically, a township employee stated that he was pushing a roll off load when the tank suddenly took off as the gases inside propelled out of the top of it. The tank hit the garbage compactor and broke the front window.

In addition to this tank, there were two other tanks which were picked up and brought back to the generator - Lakehurst Naval Engineering Center.

H.W.  
Under N.J.A.C. 7:26-2.5.27, (Waste Identification and Definition), these tanks are defined as (Waste I.D. #17, Dry Hazardous Waste. This material is unacceptable for disposal at the Lakewood Landfill, and must be disposed of at a registered hazardous waste disposal facility utilizing a N.J. manifest.

For more information, contact David Potts of my staff at (609) 292-9877.

Very truly yours,

*Ronald T. Corcoran*

Ronald T. Corcoran  
Assistant Chief  
Bureau of Hazardous Waste

ATTACHMENT

D-1

RTC:DP:H2-B8:hjg



10/9/81

State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF ENVIRONMENTAL QUALITY  
JOHN FITCH PLAZA, CN027, TRENTON, N.J. 08625

(IN THE MATTER OF)  
(THE LAKEWOOD TOWNSHIP)  
(SOLID WASTE DISPOSAL AREA)  
(OCEAN COUNTY)

ADMINISTRATIVE  
CONSENT  
ORDER

The following Administrative Consent Order is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (hereinafter, "the Department") and duly delegated to the Director, Division of Environmental Quality pursuant to his authority under the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.

FINDINGS

1. On July 31, 1980, the Department issued the Certification of Approval with Modification of the Ocean County District Solid Waste Management Plan (hereinafter, "the Plan"). This Plan provided for the closure of the Lakewood Township Landfill (hereinafter, "the Landfill") and directed the waste generated by Lakewood Township (hereinafter, "the Township") to the Ocean County Landfill in Manchester Township, Ocean County as of November 1, 1981. The contents of said Plan are incorporated by reference.

ATTACHMENT E



2. Subsequent to the issuance of the Plan, the parties hereto met to discuss an extension of the November 1, 1981 closure date. Having successfully negotiated an agreement, the Township and the Department enter into this Administrative Consent Order without trial or adjudication or finding of any issues of law and without admission of liability by the parties with respect to any such issues.

NOW, THEREFORE, by agreement of the parties, it is hereby ORDERED that the Township, its principals, agents and assigns shall:

December 31, 1981\*

1. Submit to the Department by ~~October 15, 1981~~, a plan including sufficient graphic descriptions, which provides for the closure of the landfill in an environmentally sound manner. This plan shall include, but is not limited to, engineering requirements (e.g. final grades, cover and seeding), post closure monitoring (e.g. groundwater and surface water contamination, and/or methane gas migration), and any required remedial measures (e.g. gas venting, leachate collection and control, and/or physical structures, such as dikes or berms); and shall include an implementation or schedule which lists key dates for their achievement.
2. Cease acceptance of all waste by December 31, 1981.
3. As of January 1, 1982, take its waste to the Ocean County Landfill, Inc., in accordance with the Plan.
4. If and when the Freeholders of Ocean County petition to amend the Certification of Approval with Modification of the Ocean County District Solid Waste Management Plan to direct Lakewood, Township's waste to a facility other than the Ocean County Landfill Inc., this Administrative Consent Order shall become null and void.

\* However, the Township agrees pursuant to a telephone conversation with Karen Jentis, Enforcement Manager, to submit a preliminary Engineering Plan to DEP by November 15, 1981.

RESERVATION OF RIGHTS

This ADMINISTRATIVE CONSENT ORDER shall be fully enforceable in the New Jersey Superior Court having jurisdiction over the matter and signatory parties; it shall also constitute an Administrative Order pursuant to the Solid Waste Management Act, N.J.S.A. 13:1E-1, et seq. and shall not prohibit, prevent or otherwise preclude the Department from taking whatever actions it deems appropriate to enforce the solid waste management laws of the State of New Jersey in any manner not inconsistent with the terms of this Administrative Consent Order, and shall not prohibit, prevent or otherwise preclude the Department from seeking full enforcement of the Administrative Order, upon a determination by the Department that the Township has failed to comply with any requirements of this Order. In such an event, Lakewood Township shall be entitled to a full hearing pursuant to law.

Upon entry of this Administrative Consent Order, Lakewood Township hereby waives its right to a hearing on this Order except as provided hereinabove.

DATED 10/14/81

Edward J. Londres  
Edward J. Londres, Assistant Director  
Enforcement Branch

DATED October 9, 1981

BY: H. George Buckwald  
FOR THE TOWNSHIP

H. GEORGE BUCKWALD  
NAME (PRINT OR TYPE)

MAYOR  
TITLE

ATTACHMENT E3



State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION

DIVISION OF WASTE MANAGEMENT

120 Rt. 156, Yardville, N.J. 08620

DR. MARWAN M. SADAT, P.E.  
DIRECTOR

LINO F. PEREIRA  
DEPUTY DIRECTOR

IN THE MATTER OF  
LAKEWOOD TOWNSHIP SOLID WASTE  
DISPOSAL FACILITY #1514A

AMENDED ADMINISTRATIVE  
CONSENT ORDER

The following FINDINGS are made and ORDER is issued pursuant to the authority vested in the Commissioner of the New Jersey Department of Environmental Protection (Department) and duly delegated to the Assistant Director for Enforcement and Field Operations, Division of Waste Management, under the Solid Waste Management Act, N.J.S.A. 13:1E-1 et seq.

FINDINGS

- 1) Lakewood Township operates a solid waste disposal area located on Kennedy Avenue, Lakewood Township, Ocean County.
- 2) Lakewood Township did submit engineering designs to the Department dated October 1970 with revisions June 1971 and July 1971.
- 3) The Department did review said engineering designs and issued a Certificate of Registration for Solid Waste Disposal and/or Processing facility dated October 24, 1972 specifically for Block 524, Lots 102, 103 and 104.
- 4) The maximum final elevation as shown on the approved engineering design for Block 524, Lots 102, 103 and 104 was not to exceed elevation 95+.
- 5) Lakewood Township did submit to the Department an annual topography map prepared by Stanley B. Peters, P.E.-L.S., dated April 27, 1981. Said map shows that elevations of deposited solid waste have reached 129+ feet. In addition, solid waste has been deposited beyond the boundary limits of Block 524, Lots 102, 103 and 104 in violation of N.J.A.C. 7:26-2.2(d).
- 6) N.J.A.C. 7:26-2.2(d) states:

ATTACHMENT

E9

No person shall engage in disposal of solid waste in this state if such an operation does not meet the operational requirements listed in this subchapter. In addition, each disposal facility must comply with any conditions or limitations which may be specified on the approved registration. Approved registrations are further contingent upon implementation of all features contained in the approved engineering design.

- ✓ 7) Departmental personnel have inspected the Lakewood Township Landfill and have cited the following violations during 1983:

Inspection of September 9, 1983:

N.J.A.C. 7:26-2.5(f) - Failure to control the scattering of papers and other lightweight materials.

N.J.A.C. 7:26-2.5(n) - Failure to apply adequate daily cover.

N.J.A.C. 7:26-2.5(q) - Failure to maintain the grade and thickness of cover material until stabilized.

Inspection of August 1, 1983:

N.J.A.C. 7:26-2.2(d) - Failure to comply with approved registration.

N.J.A.C. 7:26-2.5(f) - Failure to control the scattering of papers and other lightweight materials.

N.J.A.C. 7:26-2.5(m) - All exposed surfaces of solid waste shall be covered with daily cover material, or intermediate cover material, or final cover material at the close of each operating day. The exposed surface of solid waste shall not exceed 15,000 square feet, and in no case shall any solid waste be exposed in excess of 24 hours.

N.J.A.C. 7:26-2.5(n) - Failure to apply adequate daily cover.

N.J.A.C. 7:26-2.5(q) - Failure to maintain the grade and thickness of cover material until stabilized.

Inspection of March 9, 1983:

N.J.A.C. 7:26-2.5(f) - Failure to control the scattering of papers and other lightweight materials.

N.J.A.C. 7:26-2.5(q) - Failure to maintain the grade and thickness of cover material until stabilized.

Inspection of January 18, 1983:

N.J.A.C. 7:26-2.5(f) - Failure to control the scattering of papers and other lightweight materials.

ATTACHMENT E4

N.J.A.C. 7:26-2.5(k) - Failure to maintain an adequate water supply and/or fire fighting equipment on site, fire fighting procedures shall be posted.

N.J.A.C. 7:26-2.5(m) - All exposed surfaces of solid waste shall be covered with daily cover material, or intermediate cover material, or final cover material at the close of each operating day. The exposed surface of solid waste shall not exceed 15,000 square feet, and in no case shall any solid waste be exposed in excess of 24 hours.

N.J.A.C. 7:26-2.5(q) - Failure to maintain the grade and thickness of cover material until stabilized.

ORDER

NOW, THEREFORE, IT IS HEREBY ORDERED that Lakewood Township, its principals, agents, employees, successors, assigns, tenants, and any receiver or trustee in bankruptcy, (should such an entity be appointed to take control of the facility which is the subject of this Order) shall:

- \*8) Cease the acceptance and disposal of all solid waste at the Lakewood Township Landfill by March 30, 1984.
- 9) Submit to the Department by March 30, 1984, a closure plan in accordance with N.J.A.C. 7:26-1.4, 2.9 and 2.13, "Collection and Disposal of Waste, Sanitary Landfill Closure and Post-Closure Requirements" which became effective June 6, 1983. Submit closure plan to:

N.J.D.E.P.  
Division of Waste Management  
Bureau of Compliance and Enforcement  
120 Route 156  
Yardville, NJ 08620  
Attention: Robert Powell

- 10) Submit to the Department by March 1, 1984, an application for a New Jersey Pollutant Discharge Elimination System (NJPDES) Permit pursuant to N.J.A.C. 7:14A-1 et seq.; and comply with all terms and conditions of NJPDES issued by the Division of Water Resources. Contact: Mr. Arnold Shiffman, Administrator, Water Quality Management Element, (609) 292-5262.

- ✓ 11) Cover the facility with a total of two (2) feet of cover material by April 30, 1984. Upon final review by the Department of the closure plans and NJPDES ground water analytical results, the Department will notify Lakewood Township of any additional final cover or closure requirements.

ATTACHMENT E5

## M E M O R A N D U M

State of New Jersey  
Department of Environmental Protection

TO: File

INVESTIGATIVE  
REPORT

FROM: BRIAN PETITT

DATE: 7/30/82

SUBJECT: LAKEWOOD TWP. LF #1514 A OCEAN CO.

At approx 10:20 on 7/30/82, I entered this site to perform a routine inspection. I was accompanied by Mike Tompkins (SWA). We were immediately greeted by a machine operator who asked us to wait for Mr. Gilbert Carlson before beginning our inspection.

Note: While waiting for Mr. Carlson, I noticed a 55 gal drum on a side slope of the fill. (See sketch Area-A and photo). The drum was marked "Bel-Ray Co. Inc. Farmingdale, NJ BA-120 SUMMER 400 LBS. NET phone: 201-938-2421 TERMALENE"

After Mr. Carlson's arrival, I informed him that I would have to leave the site and report this drum to the SWA office. I asked him not to move the drum until I receive instruction from my supervisor.

At approx 11:30 I called the office, informed June Edwards (SWA) of the drum, and was instructed to inform Mr. Carlson that the drum should be "set-aside" until (SWA) Hazardous Waste personnel arrive.

When I returned to the landfill, I was

ATTACHMENT F

## M E M O R A N D U M

State of New Jersey  
Department of Environmental Protection

TO: File

INVESTIGATIVE  
REPORTFROM: BRIAN PETITIDATE: 7/30/82SUBJECT: LAKEWOOD TWP LF # 1514 A OCEAN CO.

informed that Mr Carlson had left. I then contacted Mr. Pete Coulis, Asst. Supt. of Public Works, (VIA two-way radio), and inform him of how the drum should be handled.

2.5.M. An area approx. 50' x 50' consisting of bldg demo. filled in a low area, was observed. See sketch Area-B. Mr. Edward Green, machine operator, stated that this area was a "wash-out" that was filled with bldg demo. to stabilize the ground.

2.5.M. An area approx 100' x 160' consisting of exposed garbage, was noted. See sketch Area-C.

2.5.M. An area approx 15' x 40' consisting of wood scraps, was observed. Note: This area is where the large pile of wood was in the past. It appears that the wood has been covered and this load was recently dumped. See sketch Area-D.

2.5.Q. An area approx 30' x 40' consisting of erosion on the side slope, was noted. See sketch Area-E

2.5.Q. An area approx 30' x 60' consisting of erosion on the side slope, was noted. See sketch Area-F and photo

ATTACHMENT F1

## M E M O R A N D U M

State of New Jersey  
Department of Environmental Protection

TO: File

INVESTIGATIVE  
REPORTFROM: Brian PettitDATE: 7/30/82SUBJECT: Lakewood Twp LF # 1514 A

OBS #5 | A large excavated pit contained ponded water. This area might contain groundwater. Leachate is presently draining in the direction of this area (see obs #4)

Note: | After this inspection we checked collector/hauler registration cards on approx 10 trucks. We left this site at approx 2 PM.

ATTACHMENT F3



# MEMO

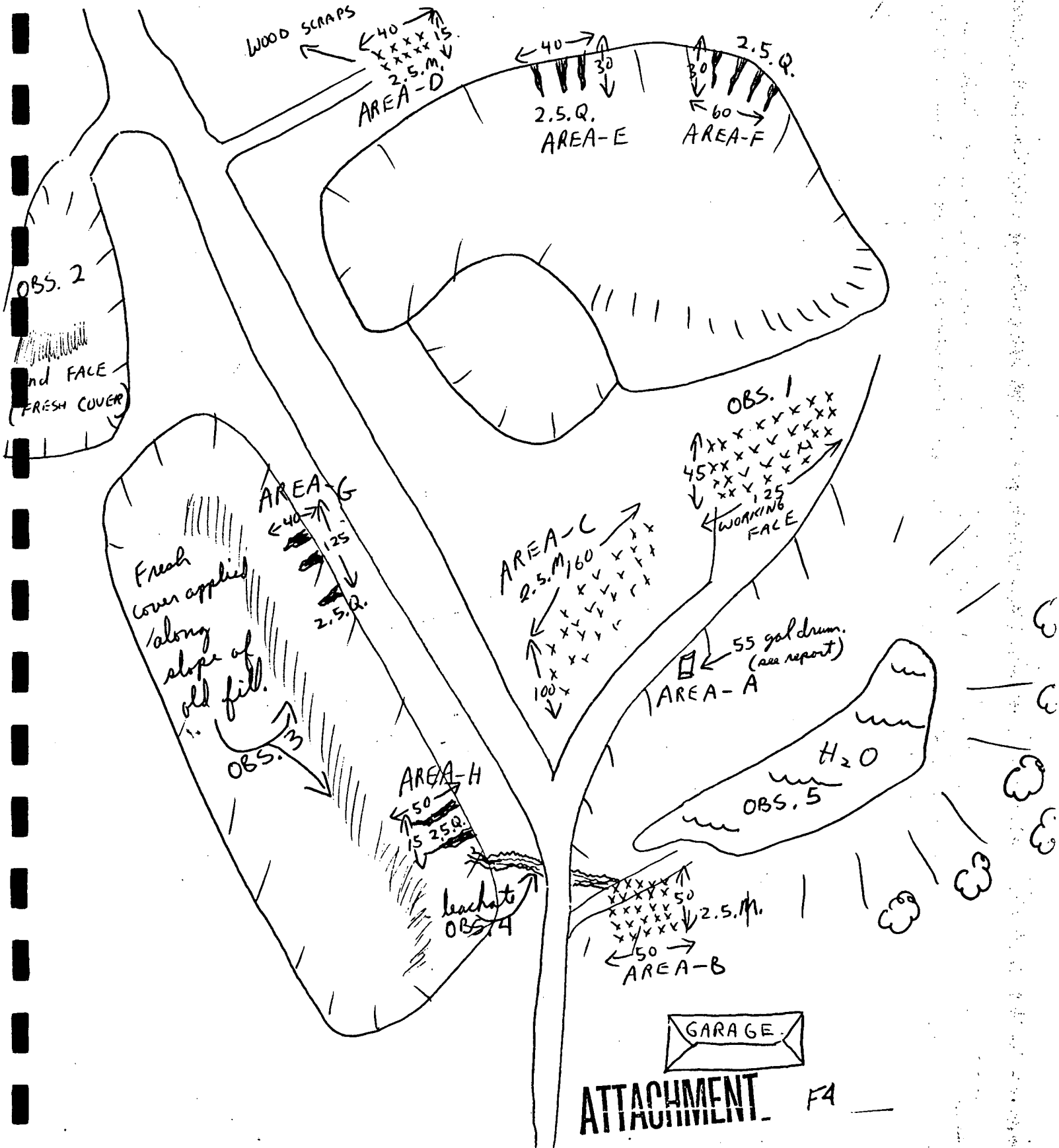
NEW JERSEY STATE DEPARTMENT OF ENVIRONMENTAL PROTECTION

TO

FROM BRIAN PETITT

DATE 7/30/82

SUBJECT LAKEWOOD LF # 1514 A OCEAN CO



ATTACHMENT F4

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION  
DIVISION OF WASTE MANAGEMENT

INSPECTION REPORT  
NARRATIVE

NAME OF FACILITY LAKELAND TWP.DATE 05-31-84

CHAPTER CITATION	DESCRIPTION
	THIS INSPECTION IS ONLY TO DETERMINE COMPLIANCE WITH ITEM # 11 OF AN ORDER ADDING THAT NO SOLID WASTE BE DEPOSITED IN CURB CURB OR UNPAVED AREAS.
226-2.5.P	UPON ARRIVING AT THIS FACILITY THIS WRITER NOTED NUMEROUS AREAS WHERE PROBLEMS HAVE TAKEN PLACE, ALSO IN NUMEROUS AREAS REFUSE HAS BEEN NOTED INTRODUCING THROUGH APPLIED COVER MATERIAL.
	IT IS THEREFORE THIS WRITER'S OPINION THAT LAKEWOOD TWP IS NOT IN COMPLIANCE WITH THE ABOVE MENTIONED ORDER.
	MR. FERRARA OF THE D.C.H.D. WAS AWARE OF THIS INSPECTION DURING THE COURSE OF THE INSPECTION NO. D.C.H.D. INSPECTOR WAS PRESENT.
	NOTE: ON 06-04-84 THIS WRITER CONTACTED MR. PAT COULAS OF THE LAKEWOOD TWP. D.P.W. VIA TELEPHONE AND INFORMED MR. COULAS OF THE ABOVE FINDINGS.

ATTACHMENT 6

S. P. DeL...  
Inspector

MALCOLM  
PIRNIE

TELEPHONE CALL CONFIRMATION

LAKEWOOD TWP LANDFILL  
#156

Local \_\_\_\_\_ Long Distance 201-341-9100 // 201-929-2054

Date 5/2

(To) From JOE PREYLIWA OCEAN County Health

Time \_\_\_\_\_

JOHN HAAS O.C. Planner

Project NJDEP PA

(MPI) Name M. SADDUSKI

Proj. No. 835003-1

Subject LAKEWOOD TWP LANDFILL

3:20 MR PREYLIWA WAS NOT AWARE OF CURRENT ACTIVITIES AT LF  
HE KNEW OF FINDINGS IN 1981(?) OF POSSIBLE CONTAMINATION OF  
AREA WELLS FROM LANDFILL.

SUGGESTED THAT I CALL JOHN HAAS - O.C. PLANNING

3:40 - HE WILL CALL BACK - MR HAAS NOT IN.

5/6 10:05 Called MR HAAS SAID LANDFILL WAS ACTIVE UNTIL 1983. IN 1981

O.C. SUBMITTED A LANDFILL REGIONALIZATION REPORT\* TO  
NJDEP. NJDEP ~~RE~~ REJECTED REPORT & ORDERED <sup>THE</sup> EXISTING ~~THE~~  
LANDFILL IN LAKEWOOD CLOSED. A GROUNDWATER PROBLEM WAS  
DETECTED. NO CURRENT MONITORING IS TAKING PLACE.

NOTE: WE (MALCOLM PIRNIE) HAVE THE REPORT IN OUR FILES

Route to:

File:

**MALCOLM  
PIRNIE****OFF - SITE RECONNAISSANCE**Date: MARCH 20, 1985Time In 10:30 Out 11:30 A.MSite ID No. 156Site Name: LAKEWOOD TWP L.F.Location: LAKEWOOD TWPAddress: KENNEDY AVENUECity, County LAKEWOOD, OCEAN COUNTYZip: N.J.Personnel: RATAN K. BARDHANTitle: T2MANOJ S. SHAHP3Conditions: SUNNY & MILDTemperature: 38°Any evidence of imminent hazard? NOIllegal Dumping? NONE SEENUncapped Monitoring Wells? NONE SEEN

If Yes, Notify NJDEP

Signature: Ratan K BardhanDate: MARCH 20, 1985Witness: Manoj ShahDate: MARCH 20, 1985

Site: LAKEWOOD TWP. LAND FILL

Site ID No. 156

Date: MARCH 20, 1985

SUBJECT SITE, LOCATED ON KENNEDY AVE IN LAKEWOOD TWP HAS VISITED ON MARCH 20, 1985. THE FOLLOWING BASIC OBSERVATIONS WERE MADE DURING THE OFF-SITE RECONNAISSANCE:

- THERE WAS NO RESIDENTIAL BUILDING AROUND THE SITE.
- THIS SITE IS NO MORE ACTIVE.
- THIS SITE LOOKS LIKE SANITARY LAND FILL.
- THERE ARE SOME WOODED PLACE ON THE SITE.
- SITE APPEARED THAT IT HAS BEEN ALREADY FILLED.

Signature: *Rakesh Barden*

Date: MARCH 20, 1985

Witness: *Mauri Shah*

Date: MARCH 20, 1985

Subject: LAKEWOOD TWP. L.F.

Site ID No. 156

Date: MARCH 20, 1985

Page No.

ASA:

Frame No: Object photographed:\* Location of photographer:\* Compass heading:

156-15 RAIL LINE ON WEST SIDE OF SOUTH-WEST  
CROSS STREET.156-16 EDGE OF LANDFILL ON SOUTH SIDE OF RAIL SOUTH - WEST  
LINE156-17 LANDFILL AREA ON NORTH SIDE OF WEST  
RAIL LINE.156-18 LANDFILL AREA ON WEST SIDE OF NORTH  
CROSS ROAD.

\*Indicate on sketch or map if possible

Signature: R K Borden

Date: March 20, 1985

Witness: Mancishev

Date: March 20, 1985

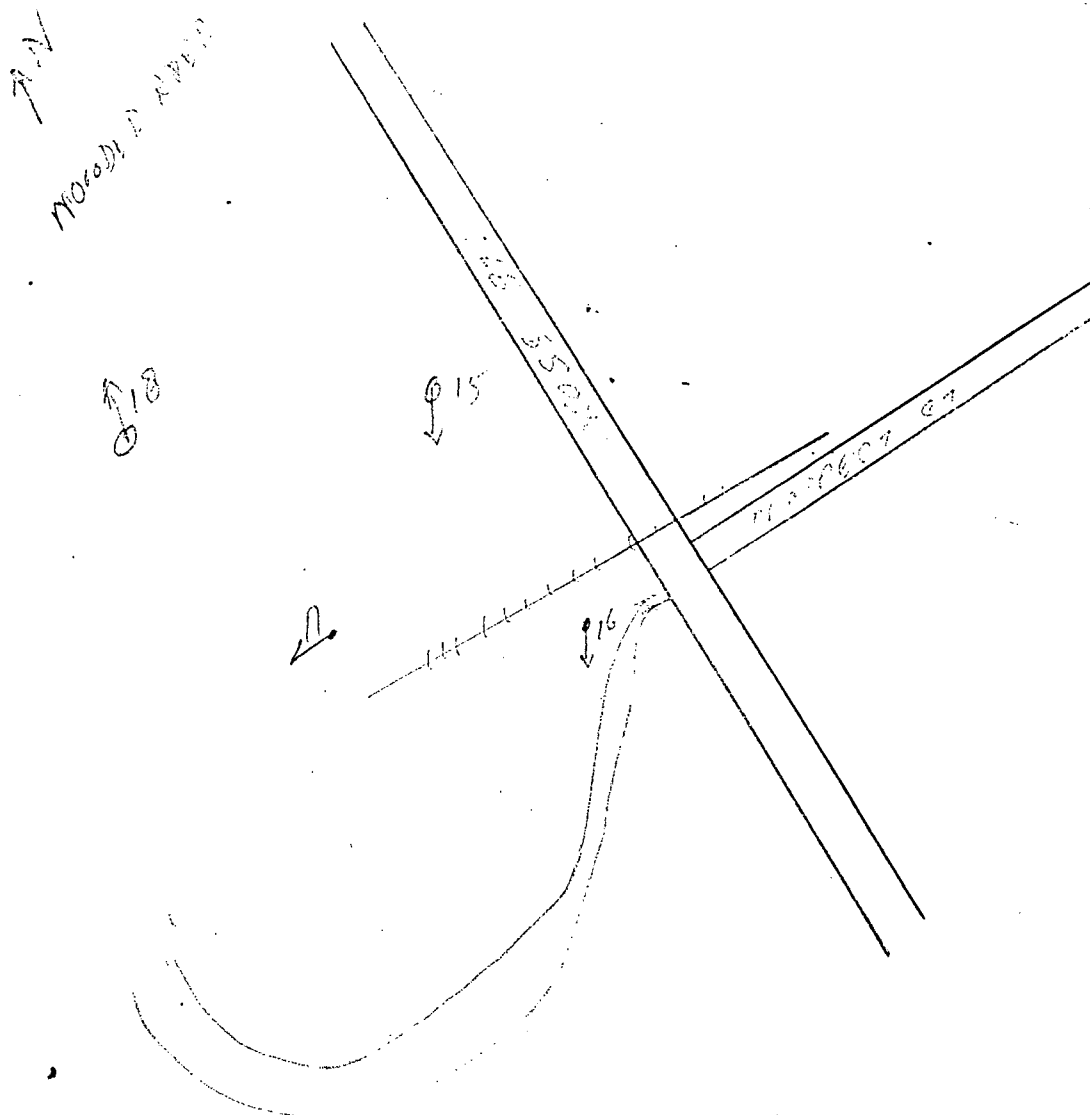
MALCOLM  
PIRNIE

MAPS AND SKETCHES

Page: \_\_\_\_\_

Site: LAKE HOOD  
TWP. 4-F

ID No. 156



NOTED

Signature: Rajan K. Bardhan

Witness: Manoj Shah

Date: MARCH 20 1985

Date: MARCH 20, 1985

MALCOLM  
PIRNIE

SITE NAME: LAKEWOOD TWP LANDFILL

FILE	SEARCH DATE	REVIEWER	RCRA 300I FORM	CERCLA 103C FORM	PRELIMINARY INSP. REPORT	FIELD INSPECTION REPORTS	AGENCY INTERNAL REPORTS	RESP. PARTY MEMOS	FORMAL CORRESPONDENCE	SITE SKETCHES	ANALYTICAL DATA	SECOND SEARCH DATE	REMARKS	QA CHECK
HSMA	2/1/85			✓	✓		✓	✓	✓				<div>File review information was requested from the following sources: NJDEP/DWR: Central; Groundwater; Regional Enforcement NJDEP/DWM: Central; HSMA; Enforcement NJDEP/OSR: Industrial Surveys USEPA: Federal Plaza, Edison</div>	

CODES:

- ✓ REVIEWED AND COPIED
- X REVIEWED BUT NOT COPIED
- NF NOT FOUND



MALCOLM  
PIRNIE

SITE NAME: LAKEWOOD TWP. LANDFILL

FILE	SEARCH DATE	REVIEWER	RCRA 300I FORM	CERCLA 103C FORM	PRELIMINARY INSP. REPORT	FIELD INSPECTION REPORT	AGENCY INTERNAL REPORTS	RESP. PARTY MEMOS	FORMAL REPORTING CORRESPONDENCE	SITE SKETCHES	ANALYTICAL DATA	SECOND SEARCH DATE	REMARKS	QA CHECK
NJDEP DMW	01-28-85	MOHAN SARDESHAI	NF	NF	✓	✓	✓	✓	✓	✓			Violation <sup>45/31/84</sup> Notice issued for failure to apply adequate Final Cover material as per amended administrative consent order.	

CODES:

- ✓ REVIEWED AND COPIED
- X REVIEWED BUT NOT COPIED
- NF NOT FOUND
- NA NOT APPROPRIATE

MALCOLM  
PIRNIE

SITE NAME: LAKEWOOD TWSP. LANDFILL

156

FILE	SEARCH DATE	REVIEWER	RCRA 3001 FORM	CERCLA 103C FORM	PRELIMINARY INSP. REPORT	FIELD INSPECTION REPORT	AGENCY INTERNAL REPORTS	RESP. PARTY MEMOS	FORMAL CORRESPONDENCE	SITE SKETCHES	ANALYTICAL DATA	SECOND SEARCH DATE	REMARKS	QA CHECK
DWM TRENTON	1/29/85	F.M.			+	+	+	+						

ID NO: 156  
LOTS, 102, 103, 104  
LOCATION: BLK. 524  
KENNEDY AVE.  
LAKEWOOD  
OHIO

CODES:

- ✓ REVIEWED AND COPIED
- X REVIEWED BUT NOT COPIED
- NF NOT FOUND

Preliminary Assessment Photo Log

SITE: LAKEHOOD TWP. d.f.

I.D. 156

DATE: MARCH 20, 1985



FRAME: 156-15 TIME: 10:30 - 11:30 DIRECTION: SOUTH WEST.

DESCRIPTION: SHOWS RAIL LINE



FRAME: 156-16 TIME: 10:30 - 11:30AM DIRECTION: SOUTH WEST.

DESCRIPTION: SHOWS EDGE OF LANDFILL



Preliminary Assessment Photo Log

SITE: LAKEWOOD TWP. d.f.

I.D. 156

DATE: MARCH 20, 1985



FRAME: 156-17 TIME: 10:30AM-11:30AM DIRECTION: WEST

DESCRIPTION: SHOWS LANDFILL AREA



FRAME: 156-18 TIME: 10:30AM-11:30AM DIRECTION: NORTH

DESCRIPTION: SHOWS LANDFILL AREA